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National Safety News

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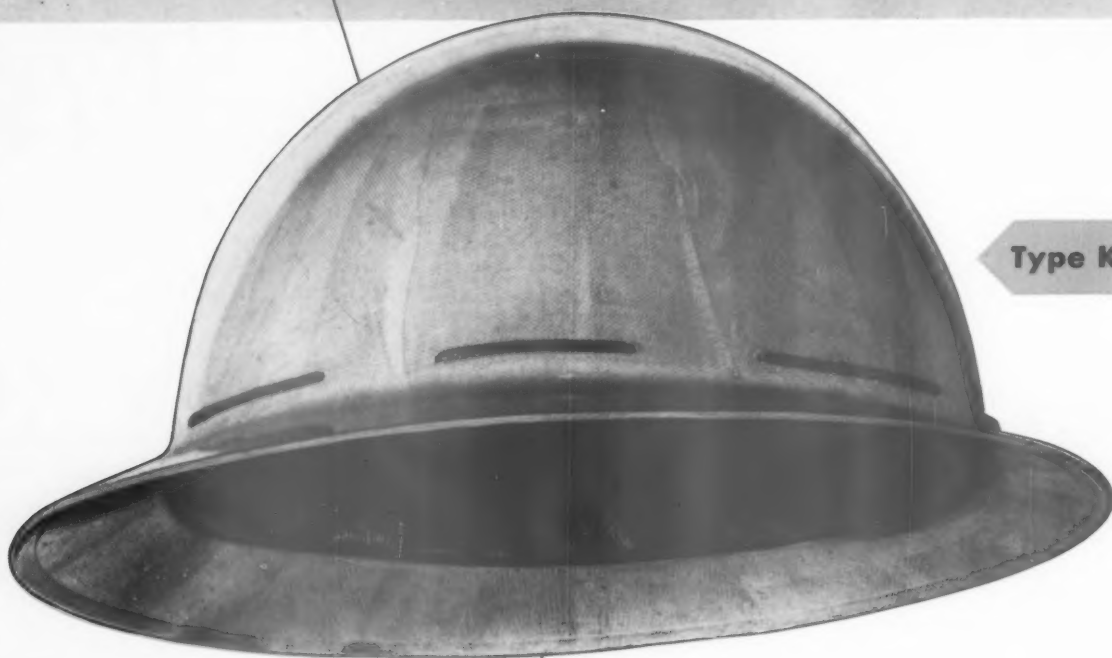
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For your convenience, Willson distributors in 61 cities are listed on page 126.

National Safety News, May, 1950

NATIONAL SAFETY NEWS



Published monthly by the
National Safety Council

MAY, 1950

Vol. 61, No. 5

THE COVER: Night scene in a signal tower as the towerman opens the switch that guides a streamliner into the terminal.

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In This Issue . . .

A VISIT to one of the newer plants is a striking reminder of industry's progress in providing cleaner, safer and more attractive working conditions. It is also a reminder of how much planning (including checking measures for safety and health) must be done before the bulldozers start to work. (Page 18.)

To the physician in private practice a good bedside manner is an asset second only to a reputation for professional skill. In industry a calm, sympathetic attitude on the part of the doctors and nurse makes their preventive and curative work more effective. (Page 21.)

On the basis of tonnage, bituminous coal mining is four times safer than it was 40 years ago; in relation to man-hours of exposure, it is twice as safe. Much of the credit is due to mechanization which has eliminated much hazard and drudgery and reduced the exposure at the working face. (Page 22.)

When the facts about accidents to city employees in Oakland, Calif., were presented, the city manager's office got quite a shock. The accident rate was much worse than the average for industry and the taxpayers were footing a heavy bill. With the aid of NSC Chapter and a local industry, an effective safety program was started. And for every dollar spent on safety, the city saved twenty. (Page 26.)

National Safety Council

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NOW... Wire Rope Slings ***with flexibility comparable to fiber rope***

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Maybe you don't have to depart from established custom to enjoy the advantages of ACCO Wire Rope Slings.

The picture above illustrates a case in point. The hitch is a typical fiber rope hitch. But the sling is not fiber rope. It is a Double ACCO-LOC Cable Laid Grommet. It has all the safety, dependability and uniformity of an all-steel,

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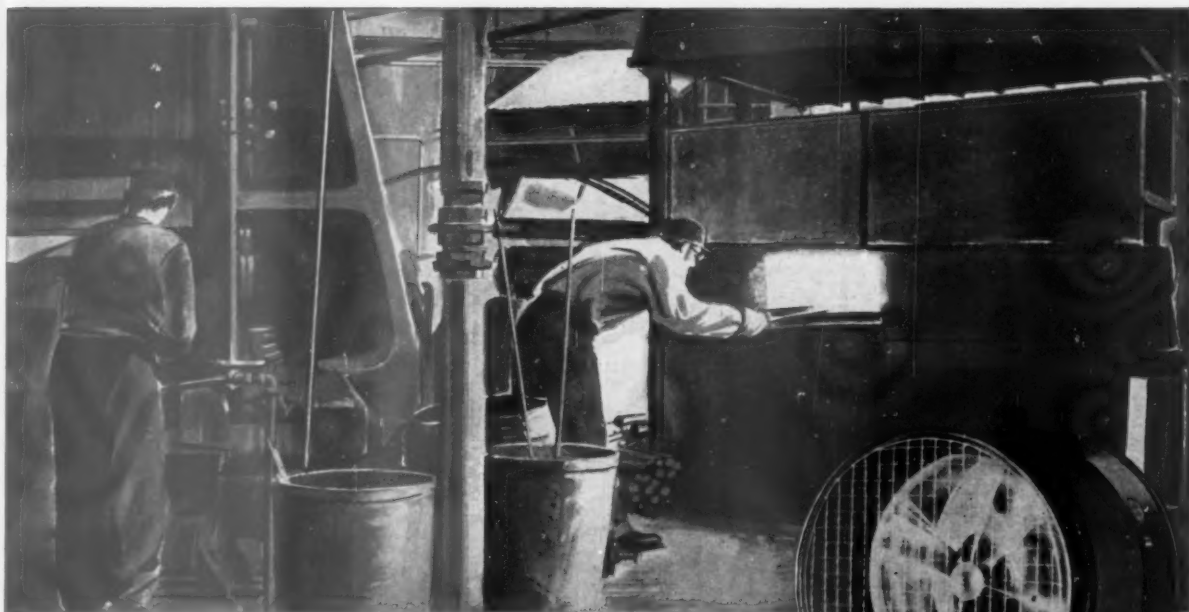
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☐ motors, generators, switchboards.

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☐ general man cooling.

☐ around cracking stills.

☐ exhausters, welding fumes.

☐ stirring up stagnant air wherever men are working or material is drying.

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COMPANY

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CITY

(Write here any special ventilating problem you may have.)



Do You Know How Much an Accident Costs?

BILL WILLIAMS, foreman of the machining department, made a wry face.
"You say the compensation, doctor bills and hospital expense of Fred's accident will figure around \$200?" he asked the works manager. "I suppose so," the manager replied. "But it will be charged up against my department."

Here are swift-moving narrative-style safety discussions that will shoot new life into your foremen safety meetings!

SAFETY IN FOREMANSHIP is a ready-made course for teaching the principles of accident prevention to foremen. Now you can schedule a series of safety meetings that present an intensely interesting slant on the old time-tested subjects.

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3. "Have You Thought About This?" (the human suffering caused by accidents)
4. "Do You Know How Much An Accident Costs?"
5. "Safeguards—Why And How"
6. "Look Out For That First Step!" (safety instruction for the new worker)
7. "Are You Following Through?" (enforcement of safety instructions)
8. "What Accident Statistics Tell The Foreman"
9. "Why And How To Be A Good Housekeeper"
10. "Detecting And Correcting Unsafe Conditions"
11. "After An Accident—What?"
12. "What About Fire In Your Department?"

Introductory Offer!

Purchase a sample set at the SPECIAL PRICE of \$1.00—a saving of $\frac{1}{3}$ on the single copy member price. (Additional sets at regular price.) Look over the booklets before ordering copies for each of your foremen and supervisors. An instructor's outline gives you all the information on how to present the material to your foremen, and a series of questions and answers are provided for each booklet. Don't miss the special introductory offer . . . send in your order, today.

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BOTH**

1 Macwhyte Wire Rope

for your cranes and hoists . . .

Because Macwhyte manufactures "a thousand and one" wire ropes, you can select a wire rope of exactly the correct size and construction for your equipment. Because you get the rope best suited for your equipment, you get economical service!

Whatever your lifting problem, our engineers will be glad to give you the benefit of their specialized experience. Write direct to Macwhyte Company or your Macwhyte Distributor.



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made to order for safe handling . . .

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A thousand and one
WIRE ROPES
made by
MACWHYTE
all job-proved . . .



Macwhyte Company, 2902 Fourteenth Avenue, Kenosha, Wisconsin. In addition to PREformed, Internally Lubricated bright steel wire rope and Braided Wire Rope Slings, Macwhyte Company manufactures Stainless Steel, Monel Metal and Galvanized Wire Rope, Aircraft Cables and "Safe-Lock" Cable Terminals. Macwhyte distributors throughout the U.S.A. and other countries. Mill depots in the following cities: New York, Pittsburgh, Chicago, Minneapolis, San Francisco, Portland, Seattle, San Diego, Los Angeles.

"What Makes It Good for Me?"

Charley, who owns a drug store, wants to know why he should care about a profit for the telephone company



The Scene — A drug store in any one of thousands of cities and towns in the U. S. A.

The Time — Lunch time. A man from the telephone company has dropped in. He's chatting with his friend Charley, who owns the store.

CHARLEY: "What d'ya mean—it's good for me when the telephone company makes a profit? You give me good service and all that but why should I care whether you make money or not? I'm having my own troubles, trying to put in a bigger soda fountain."

AL: "What d'ya mean, 'trying'? Can't you just up and do it?"

CHARLEY: "I've got to find me a partner with some capital. These things cost money."

AL: "Sure they do! It's the same with us at the telephone company. To keep

on giving you good service, and put in telephones for people who want them, we must have a lot more central office equipment and cable and other things. And to buy it, we have to get money from our stockholders. They expect a profit—just like your partner would."

CHARLEY: "I guess you're right. Nobody would invest his money here unless I could earn him a profit."

AL: "And here's something else, Charley. Those girls there at the far end of the fountain. They're telephone girls. They're spending a part of their wages with you—putting money into your till to help you make a profit. Thousands of dollars of telephone payroll money are spent right in this town, every week."

ADEQUATE RATES AND EARNINGS for the telephone company have a far-reaching effect. For only a strong and healthy telephone company can pay good wages, contribute to the prosperity of the community and provide an improving service for telephone users. Only through adequate rates and earnings can the telephone company—like Al's friend Charley in the drug store—attract the new capital that is needed to carry on the business.

It's the dollars from investors—from hundreds of thousands of everyday people—that build, improve and expand the best telephone service in the world for you to use at small cost.

**BELL
TELEPHONE
SYSTEM**





EMPLOYEES, VISITORS, youngsters, oldsters—now they're all stepping in safety on these attractive stairways in the Standard Oil Company of California building in San Francisco, California.

No Stairway Slipping Accidents Here

Safety men at Standard Oil Company of California report accident-free stairways

Stairway slipping accidents in this 22-story Standard Oil building used to occur until about a year ago when "SAFETY-WALK" Non-Slip stairway strips were applied to all steps and landings. Since then, slipping accidents in these locations have been eliminated.

Wherever you need positive traction—in showers, kitchens, or on ramps, catwalks, etc.—apply "SAFETY-WALK". Its tough, mineral grain surface gives safe, sure traction under all conditions. "SAFETY-WALK" is as easy to apply as cellophane tape and can be replaced in a jiffy—no injury to the surface.



THE STANDARD OF CALIFORNIA building in San Francisco has stairways protected with "SAFETY-WALK" Wetordry Non-Slip Surfacing.

MINNESOTA MINING & MFG. CO. MIN-50

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Request a new dispenser top with your next order on the lb. size of Breck pH7 Protective Cream.

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MERCUROCHROME*

(H. W. & D. BRAND OF MERBROMIN, DIBROMOXYMERCURIFLUORESCIN-SODIUM)

Do not neglect wounds, however small; even scratches and small cuts may become infected if they are not promptly and properly treated.

'Mercurochrome' (H. W. & D. brand of merbromin, dibromoxymymercurifluorescein-sodium) is one of the best antiseptics for first aid use. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association for this purpose.

The 2% aqueous solution is not irritating or toxic in wounds; minor injuries are reported more promptly when 'Mercurochrome' is the routine antiseptic, because treatment is not painful.

'Mercurochrome' solution keeps indefinitely; the color shows where it has been applied.

Physicians have used 'Mercurochrome' for more than 28 years.

Be sure to include 'Mercurochrome' in your first aid supplies.

*Reg. U. S. Pat. Off



HYNISON, WESTCOTT & DUNNING, INC.



BALTIMORE, MARYLAND

Inadequate vision is often unsuspected until discovered and corrected. Be sure that none of your employees is being penalized by trying to work with unsafe inefficient vision like this,

Workers who are fitted with B&L Safety Eyewear, incorporating professionally-prescribed correction lenses for their jobs, have benefit of clear sharp vision like this. Safer . . . more efficient!

SAFE EYES?

EYE SAFETY is a TWO-IN-ONE program

Industry-wide figures show that fully 50% of workers need eyesight correction if they are to have clear vision. Without it they can work neither efficiently nor safely. Your Bausch & Lomb distributor will help you build your eye safety program on the basis of *protection plus correction*. Protection against the hazards which can cause costly eye accidents. Correction lenses professionally prescribed where needed. Your reward will be a better safety record and a better production record.

Write for a copy of the Bausch & Lomb catalog on industrial eyewear. It includes a highly informative discussion of the theory and design of protective industrial eyewear. It also describes the complete line of Bausch & Lomb Occupational Eyewear, the eyewear built to the highest quality standards in the industry. Bausch & Lomb Optical Co., 681-Q St. Paul St., Rochester 2, N. Y.



BAUSCH & LOMB

Safety Eyewear

THE HENDEY MACHINE
TORRINGTON, CONN.
U.S.A.

This fire-extinguishing system saved \$800 a month

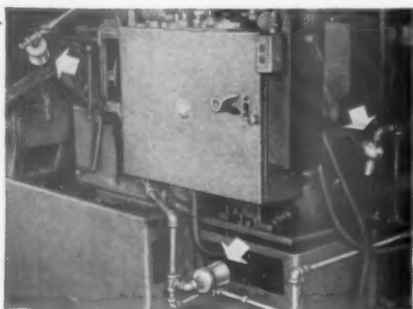
WE KNOW a big auto manufacturer who thinks of fire extinguishing systems as both protection and *production tools*.

In making valve stems they were using some automatic screw machines cooled by a light oil with a low flash point. Result—frequent fires! The company's chemical extinguishers put out the fires . . . but ruined the coolant and gummed up the machines. Result of this? There were from 16 hours to 3 days of lost time while the machines were cleaned and the oil replaced.

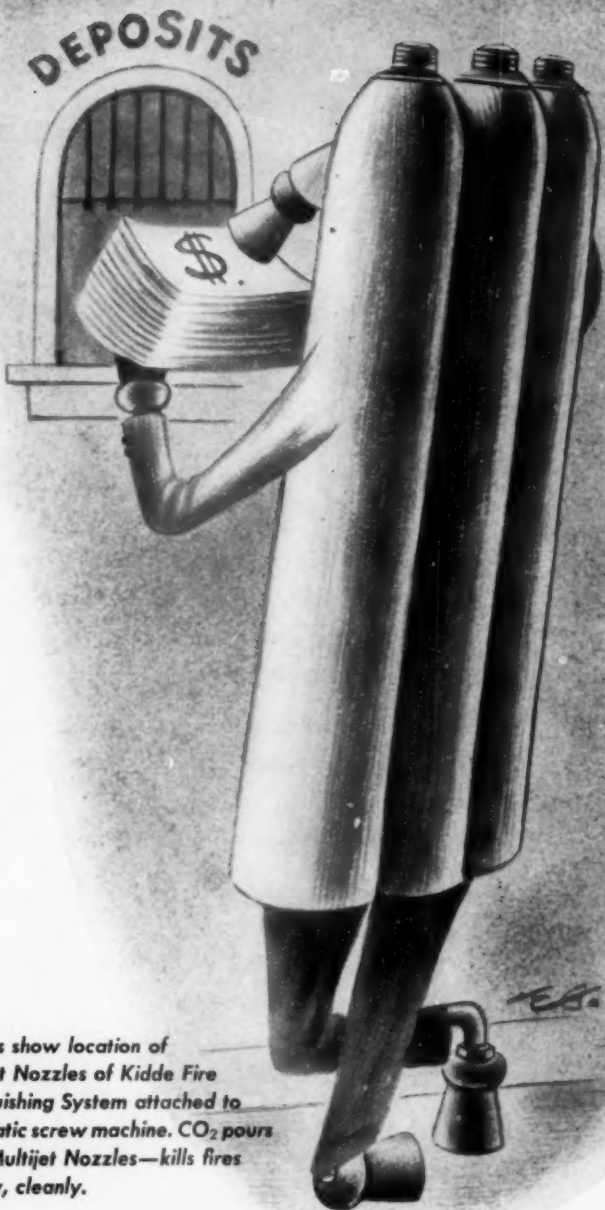
Finally Kidde extinguishing systems were installed. They detected and killed fires—automatically. Dry, clean, CO₂ smothered the flames quickly and effectively, then disappeared . . . leaving the oil unharmed and the machine clean as a whistle. *Downtime was cut to 1 hour!*

Company experts said that these Kidde systems, which cost \$800 apiece, each paid for itself in the first month . . . and kept right on saving \$800 a month, every month. They earned this money just as surely as if they were production tools.

If you'd like more information about these protection-giving production tools, write for complete information.



Arrows show location of Multijet Nozzles of Kidde Fire Extinguishing System attached to automatic screw machine. CO₂ pours from Multijet Nozzles—kills fires quickly, cleanly.



Walter Kidde & Company, Inc.
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Kidde

*There's always
something **NEW**
at **HY-TEST!***

**NOW AVAILABLE -
16 MM. SOUND MOVIE**

"ONE OUNCE OF SAFETY"



to help you sell
your workers on the importance of
FOOT PROTECTION

Filmed for Hy-Test by Sarra, Inc., one of the country's leading producers of industrial films, this 17-minute sound movie stresses briefly, interestingly, forcefully the importance of Safety Shoe protection that safety directors have been striving so long to impress on their workers.

Especially prepared to apply to any type of industrial audience, it dramatically presents the need for Safety Shoes, the painful and costly consequences that can result from failure to wear Safety Shoes, and overcomes one by one the common objections to Safety Shoes.

You will certainly want to show this film in your plant as soon as possible.

WRITE HY-TEST FOR BOOKING DETAILS

... Insure Workers' Feet in Sure Protection

with
HY-TEST  **SAFETY SHOES**

THE WORLD'S LARGEST SELLING SAFETY SHOE

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NEW YORK OFFICE: SUITE 1706, 225 W. 34TH ST. • EASTERN OFFICE: MANCHESTER, N. H.



NATIONAL SAFETY NEWS

MAY, 1950

Five Questions for Executives

I BELIEVE that the majority of executives who read the NATIONAL SAFETY NEWS have excellent safety programs in their plants. I am not nearly so sure that the majority of these executives are doing the kind of *over-all* safety job that their companies' welfare demands.

I think that frank answers to the following questions will let you decide whether you, personally, are doing a well-rounded safety job.

1. Do you know what off-the-job accidents to your employees are costing your company in increased absenteeism, replacement and training expenses, production delays, and lowered physical and mental condition of your employees?

2. Do you realize the heavy cost you bear for accidents in your community, even when your employees are not involved—the time loss when injury strikes an employee's family, the heavy tax and charity costs you pay to care for victims you don't know, the loss of purchasing power among your customers through accident bills?

3. Are you doing everything you can as well as you can to awaken your employees to the seriousness of the off-the-job accident problem?

4. Are you using your great influence to organize and improve the safety work in your community?

5. Are you backing this work with your energy and your money, as well as your moral support?

This month, in scores of cities across the country, Green Cross campaigns are underway to bring financial support to community safety organizations.

The communities which have, in past years, been successful in such campaigns, and in the saving of human life, have been those in which business leaders took an energetic and enthusiastic part.

I have never met a businessman who participated in these campaigns who did not feel that his efforts were amply rewarded—in terms of deep human satisfaction, in terms of improved public and employee relations, *and in terms of financial benefit for his company.*

It is my sincere conviction that your chance to work in behalf of the Green Cross for Safety campaign in your community is an opportunity too good for you to miss.

And if there is no campaign, if there is no organized community safety program, why don't you do something about it? The National Safety Council stands ready to help.

Ned H. Dearborn



Facade of the new plant of A. B. Dick Company at Niles, Illinois.

A 100,000 gallon welded spherical water tower provides fire protection. The tank is 123 feet high and built to withstand wind velocities of 100 miles per hour. Glare-reducing glass is used on all windows except those on the north.

Ventilation, lighting, handling material and employee services have received unusual attention in this spacious one-story plant



MANY a safety director has dreamed of moving into a new plant—one in which engineers, designers, and builders have carefully eliminated all avoidable physical hazards. And during the war and the post-war period many of these dreams have become realities and safety men have had the privilege of contributing their experience in drawing up the plans.

Ventilation, lighting, handling material facilities, personal services, and, above all, ample room for present operation and normal expansion are among the features which affect safety as well as efficient operation. These are receiving careful consideration in modern plants.

One of the largest of the newer

plants to be erected in the Chicago area is the single-story suburban plant of A. B. Dick Company, manufacturers of mimeograph equipment, supplies and accessories. Located at Niles, Illinois, 16 miles northwest of Chicago's Loop, the new building replaces the company's former general offices and plant on Jackson Boulevard and the plant on Lake Street. It gives considerably more manufacturing and warehouse capacity in 20 per cent less floor area than the two former multi-story plants provided.

The site is a 53-acre tract on Touhy Avenue adjacent to the main line of the Chicago, Milwaukee, St. Paul & Pacific Railroad, some five miles from the projected O'Hare Municipal Airport. It has

an impressive facade 765 feet wide, dominated by the two-story office building.

Intense planning preceded the construction work. There were innumerable details to be worked out with The Austin Company, the designers and builders. Because of potential fire and health hazards in some operations, the insurance companies, the Illinois Department of Labor and Industry, the city officials, and the National Safety Council were also consulted.

Everyone connected with the project showed a keen interest in providing safe and healthful working conditions. All plans which would affect safety and health were cleared through the safety engineer, George F. Nuernberger. It

was his responsibility to coordinate the approval of all outside agencies and make recommendations for redesign where necessary. Practically all the Safety Department's recommendations were adopted and have proved thoroughly practical. Inevitably, experience has shown where further improvements might have been made, but pre-planning for safety is proving its value.

Four major buildings, with 13 acres under roof comprise the new

facilities. The manufacturing building alone occupies 11 acres, with provision for expansion in two directions.

The framework of the plant is composed of 60-foot trusses with columns spaced 40 feet apart. The H-section welded trusses were designed by the Austin Company's research department to make use of varied types of equipment for handling materials.

The 454,000 square foot area in the plant proper has been laid out

to simplify materials handling and to reduce travel distance to a minimum. All materials are received at and all products shipped from the two interior and one exterior spur tracks, or the large truck docks at the north side.

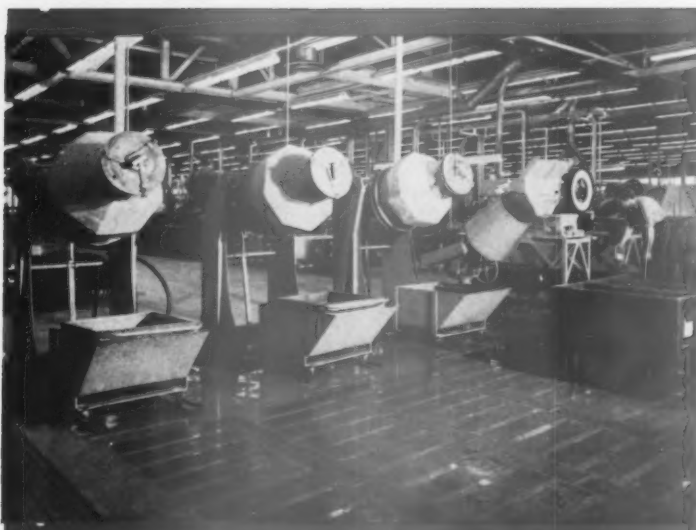
A feature of the plant is the underground storage tank farm. Located back of the solvent building, 19 underground tanks—some with a capacity of 12,000 gallons—hold practically all processing

Lower left: Much of the stencil manufacturing is concentrated in two large air-conditioned, windowless rooms. Heat and vapors produced by the processes are exhausted direct to the outside while constant temperature and humidity are maintained by distribution ducts leading from air-conditioning equipment platforms.

Lower right: Black oxide finishing tanks in plating department showing ventilating and material handling methods. All exhaust pipes serving the tanks on both sides of the aisle are vented through a single manifold with a power-driven exhaust fan on the roof. Fresh air is provided through a ventilating outlet above the duct.

This broad aisle extends 500 feet through the center of the manufacturing and warehouse area. Much material is handled on skids and pallets.





chemicals which were formerly stored in drums.

To facilitate handling material and reduce manual handling, 29 cranes and monorail systems have been installed, some with capacities up to ten tons.

For interdepartmental traffic, a fleet of fork lift trucks is used. These are helpful in making effective use of the 14-foot clear height in areas provided for the storage of materials in process and the finished products.

Uniform working light and comfortable atmospheric conditions have been achieved without the use of sawtooth roofs and monitors which are often used to provide light and ventilation in large one-story plants. The system has been designed to make the plant independent of natural light. The $7\frac{1}{2}$ miles of fluorescent units provide general illumination of at least 30 footcandles in production and other occupied departments. In storage bays and similar areas incandescent lamps maintain 15 footcandles.

Ventilation is controlled by 43 standard factory-built heating and ventilating units. These are mounted singly and in groups of two, three and four on platforms which fit into the building trusses. Each unit has a heating capacity of 1,500,000 Btu's per hour and can handle 14,400 cubic feet of

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Top: Abrasive tile was installed in the floor of the tumbling section to reduce slipping hazards. A drainage trough covered by a grating surrounds all wet-process areas. General illumination of 30 foot-candles is provided in all manufacturing areas by fluorescent fixtures.

Middle: Because of the thoroughness of ventilation it was not necessary to isolate this paint spray booth. All process vapors are exhausted at their source and general ventilation provides a complete change of air every ten minutes.

Bottom: Plating and other metal finishing operations are concentrated at one end of the plant. Plating tanks are equipped with exhaust hoods. Self-draining, open-planked floors are easy to maintain.

The Art of Handling Patients

By EDWARD C. HOLMBLAD, M.D.



THE first impression that a patient gets of the plant physician, nurse and medical department is very important. Modern equipment, clean surroundings, and pleasant, understanding personnel pay big dividends in obtaining the patient's confidence. But it is most important that they *show a genuine interest in the patient's injury problem.* To him it is most serious, and it may be that he has an anxiety problem even if you can't see objective evidence of traumatic injury. An error of tact is committed when a doctor or a nurse tries to minimize the extent of a patient's injury. It is unwise to say, for instance, "Oh, that is nothing. You should wait until you really get something." It is also unwise to make comparisons between this patient's injury and someone else more seriously injured.

To point out that someone was more seriously hurt doesn't help the patient to recover. It's much better, if the injury is a simple one, to make the necessary examination, explain tactfully and without ridicule that it does not appear to be a serious injury, and that you have every reason to believe the patient will make a com-

plete recovery in a reasonable time. Then proceed to render the necessary treatment carefully, and not in a hasty nor slipshod manner.

Keep Calm

The industrial nurse and physician must remain calm under all circumstances. I have known doctors and nurses, who, under the strain and tension of long hours of hard work, would get excited and fly off the handle. Fortunately this only happens on rare occasions. But add to the tired doctor and nurse an injured, equally tired and irritable employee and you have the makings of a really explosive situation. It is remarkable to me that these explosions do not occur more often.

There are always instances of the hyper-critical, antagonistic, fault-finding type of employee that will try the patience of everyone in the medical department. Your first reaction is to argue with such an employee to prove that his criticisms are untrue, incorrect or not founded on fact. But this simply makes matters worse, for an argument is just what he is looking for. You're playing right into his hands because this enables him to make a mountainous issue of a trivial incident.

A much smarter and shrewder procedure is to be overly nice. If necessary over-treat such a patient. That is if you have the ca-

capacity to stand this much abuse and punishment from him. In many instances I have won a patient's confidence and aided him in getting well when he was spoiling for an argument. I simply took time to sit down and listen to his side of story, giving him a chance to get it off his chest. Then when he told his story, I simply stated, "Well, John, all that sort of thing may be so, but it isn't going to cure you. Let's see what we can do to help you get well and back to work where you will be independent again."

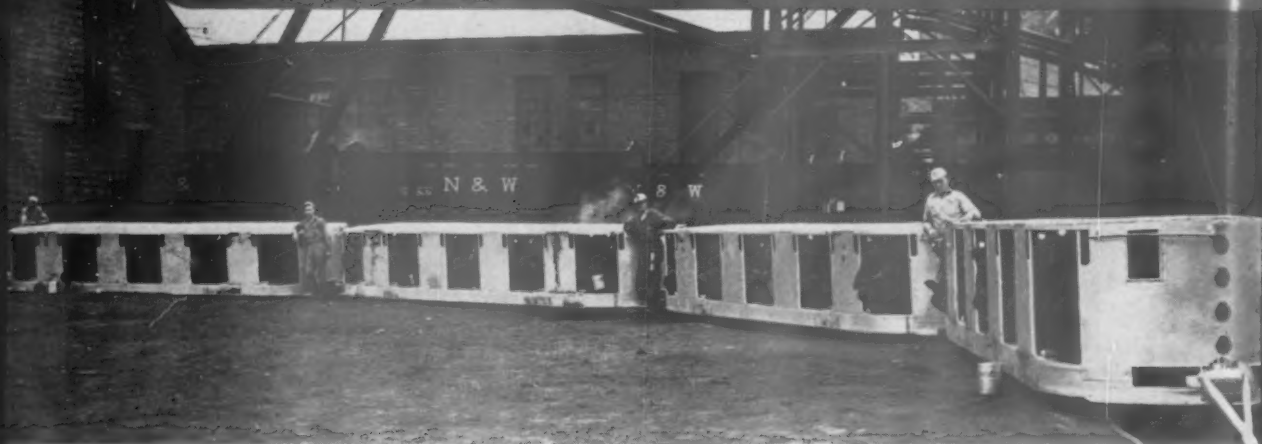
This is a graceful and tactful way to send an injured person back to work. In minor injuries it works well to say, "You probably want to keep working," or "Do you think you can keep at work?" or, "Would you like to try to continue working?" All of these give the patient an opportunity to make a decision. He decides he wants to keep working and you have avoided that unfortunate situation where the patient feels you have ordered him back to work even though he was injured. Many patients resent and remember for a long time the fact that the doctor was unsympathetic and ordered them back to work, when they should have gone home.

I frequently take the following attitude in helping a patient make a decision as to whether he wants to return to work: "You don't

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Dr. EDWARD C. HOLMBLAD is managing director, American Association of Industrial Physicians and Surgeons, Chicago. This article has been adapted from an address before the Industrial Nursing Section, 37th National Safety Congress.

MECHANIZED MINING IS



Improved equipment and mining methods, as well as reduced exposure, have contributed to safety's progress in the bituminous coal industry.

Man trip train near mine entry. Such cars have been a boon to safety in transporting men to and from work shifts. (Eastern Gas & Fuel Associates.)

BITUMINOUS coal mining is now four times safer on the basis of tonnage than it was 40 years ago. In relation to man-hours of exposure, it is twice as safe. The trend has been consistent since 1910 when the U. S. Bureau of Mines began compiling records. The safety record of 1949 showed improvement over the previous record of 1948.

Modern mechanized efficiency deserves much of the credit for this. Machines have banished much of the drudgery. In past years coal mining was done by back-straining labor and tired bodies brought mental fatigue, with increased susceptibility to accident.

Electric-driven equipment, with great advances in the cutting, drilling and loading of coal, has been a significant development. In the peak producing year of 1947, the mine labor force, with 220,000 fewer men produced 62,000,000 tons more than in 1920, with an accompanying improvement in the accident rate. Mechanization has created new skilled jobs at higher rates of pay.

In underground mining, "working face" is that part of the seam where the coal is actually being produced. It is at the working face where most accidents occur, mainly from roof and rib falls. As coal is undercut and blasted down,

new areas of roof are constantly exposed, and these must be tested for potential hazard. Here constant alertness must be practiced.

In the last ten years, about half of the fatalities in bituminous coal mining occurred at the working face from roof and rib falls. Replacing men by machines at the working face has entailed less exposure for fewer men while enabling the production of much greater tonnage.

For contrast let us look back to the horse and buggy era, when the farmer walked behind a one-horse hand-plow; the housewife swept floors with hand-brooms, and the coal miner labored with a pick and shovel. To be sure,

C. R. STAHL is Assistant to Vice-President in Charge of Accident Prevention, Eastern Gas & Fuel Associates, Coal Division, Mt. Hope, W. Va., and past General Chairman, Coal Mining Section, NSC.

The loading machine can clean up a cut from rib to rib where the newly significant "sky hook" roof bolting is employed. (U. S. Bureau of Mines.)



SAFER

By C. R. STAHL

Top: Mobile cutting machine cutting a kerf at the working face. Fewer men in this critical area means less exposure to hazard. (Bituminous Coal Institute.)

Middle: The shuttle car is a significant mobile link in the mechanized procedure of extracting and transporting coal in bulk out of the mine. Note roof bolts and plates used in the roof-suspension technique. (Eastern Gas & Fuel Associates.)

Bottom: Electric-driven cutting machine at underground working face. Conventional timber propping of the mine roof is shown. (Bituminous Coal Institute.)

some coal mining may always be done with pick and shovel in small operations selling to local markets. Lying on his side, the miner would swing his hand-pick to undercut the coal face before breaking down the coal, either by pick, bar, or the dangerous black blasting powder. This drudgery was dangerous because he was so openly exposed to mishaps from falling roof, ribs, handling explosives, setting timbers, laying tracks, hand moving of cars, etc.

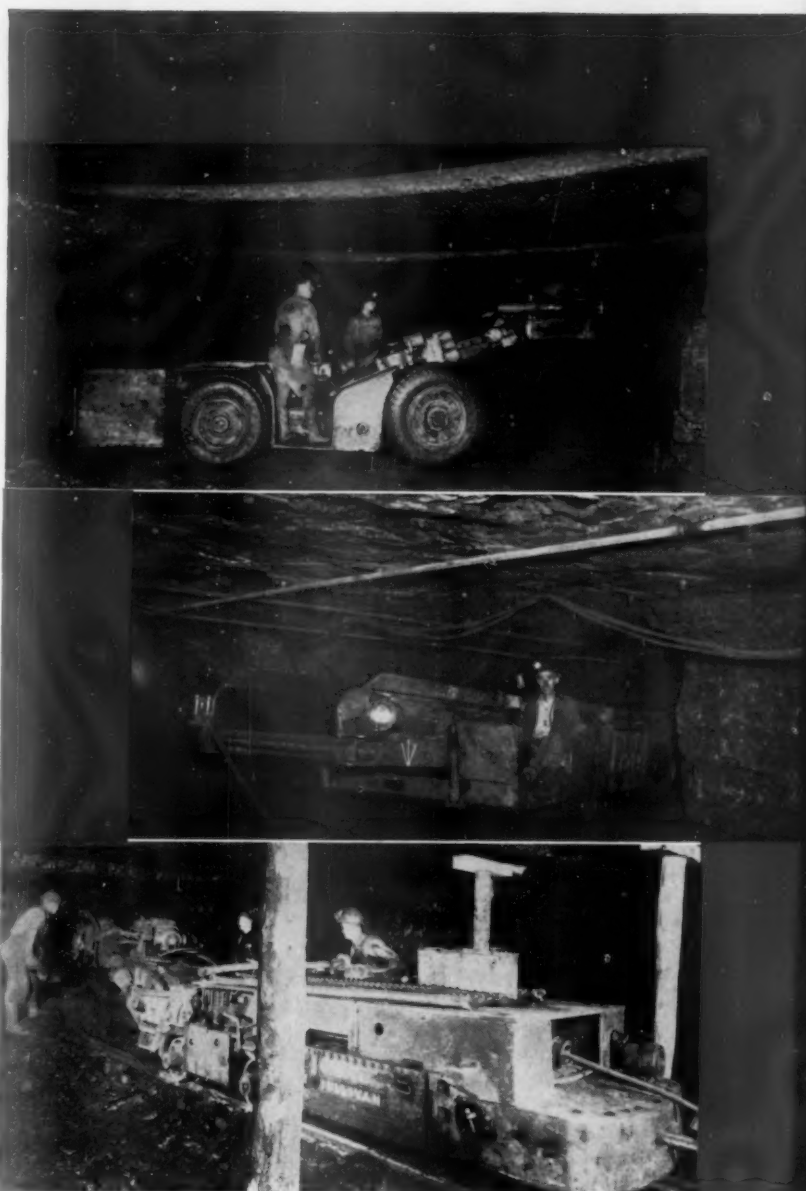
Introduction of the under-cutting machine was a significant step toward mechanizing coal mining. Like any new invention, it evolved slowly from a cumbersome, awkward, laborious contrivance to one which can maneuver with agility and cut coal with speed that would astonish past generations of coal miners. The newer cutting machines are capable of cutting a kerf in top, bottom or sides. Cutting a kerf near the top of the seam has the advantage of helping prevent the roof being shattered or otherwise damaged by blasting at the working face. Keeping the roof intact as much as possible is one ob-

vious advantage where men are constantly exposed.

Prior to World War II nearly 80 per cent of this nation's production of coal was being cut by machines, with "strip" or surface mining accounting for 8 per cent and the remainder hand-mined. Today more than 90 per cent of the underground output is machine mined. Aside from its greater productivity, the machine has reduced man-exposure hazards at the working face, which were a source of grave concern with hand mining.

Now consider the loading machine, with its long reach, non-fatigue, and the pounding it can take from occasional falls. It is a machine which has saved many lives. The loading machine began to be used about thirty years ago. The early models, which simulated hand loading, finally evolved into an efficient, voracious monster which today loads some two-thirds of this country's underground output.

During the high production
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A group of millwrights and maintenance supervisors of the Carborundum Company discuss plant maintenance practices at a session of the 24-week refresher program. These photos appeared originally in the company's employee magazine, The Carb-O-Wheel.

DOCTORS OF MACHINERY

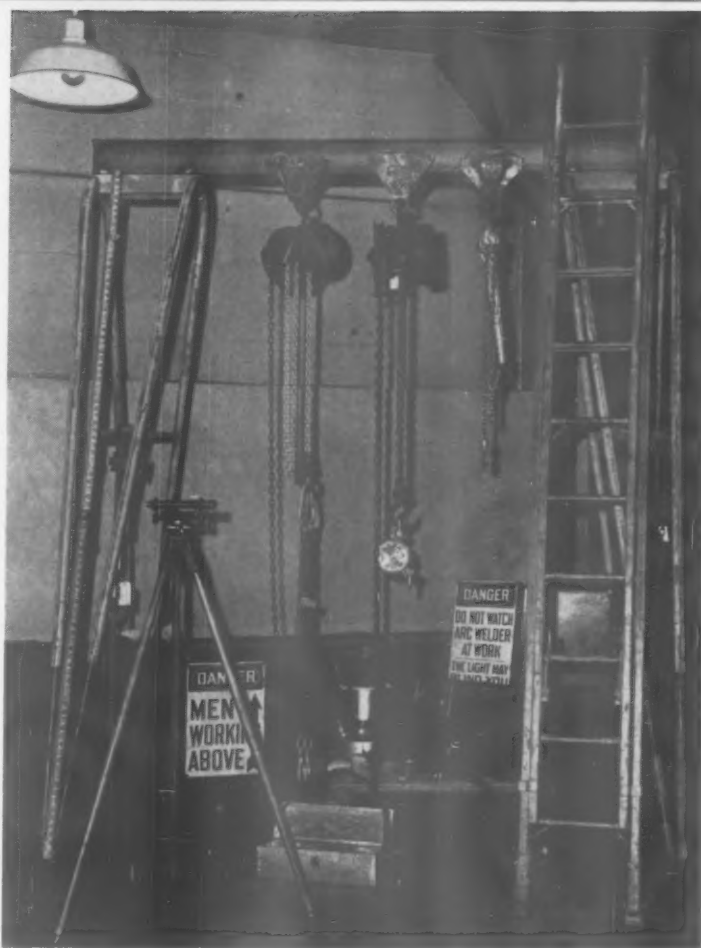
Skilled millwrights keep plant and equipment safe and serviceable

KEEPING production equipment in first-class shape is the responsibility of millwrights. Without their skilled maintenance, machinery would deteriorate quickly with serious effect on both production and on the safety of the workers.

Modern trends have made industry and its mechanical equipment vastly more complicated and plant maintenance forces benefit from period instruction courses designed to give them up-to-date information on developments and techniques.

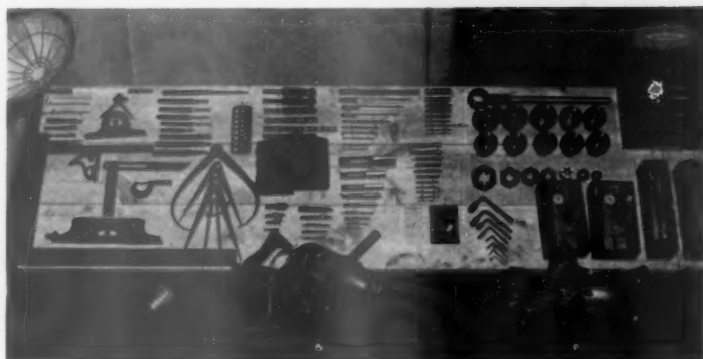
Last fall, the Carborundum Company, Niagara Falls, N. Y., began a 24-week refresher program for millwrights in the Bonded Products and Grain Division. The program presented information on up-to-date procedures, materials and tools, their application and the development of standard practices.

For millwrights and maintenance department supervision, the refresher course covered 12 important phases of millwright work. The recent class was composed of 15 men who met once a week for a two-hour session.



Some of the heavier items of equipment used by the millwrights. Included in the above picture are a transit, chain falls, an extension ladder with non-slip ladder shoes, and warning signs to be posted where men are at work.

→
Millwrights use many types of personal protective equipment. Shown here are welding mask, plastic face shield, several types of goggles, padlock and tag for switches, hard hat, protective garments, gas mask, and air line respirator with filter and regulator.



←
Keeping machinery safe and serviceable involves the use of a wide variety of precision tools, some of which are shown in the display at the right.

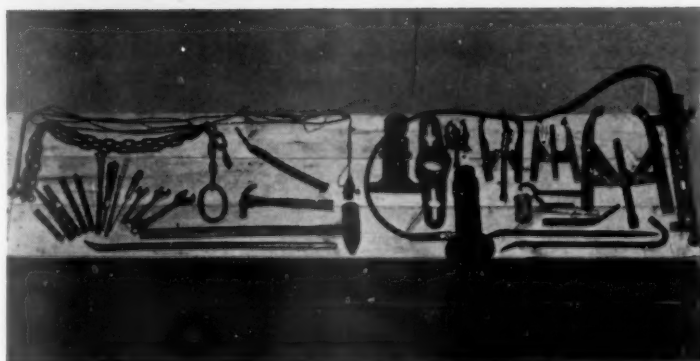
Warnings against unsafe equipment are also included in the millwright's training. Included in the collection below are some tools that are unsafe for use.

Meetings were conducted in an informal manner. Information on the topics covered by the program was supplied by class members familiar with the particular subject, and by the company's engineers. At some of the meetings representatives of business firms supplying tools and equipment required by millwrights gave talks and demonstrations.

The various subjects covered in the program included: the care and use of tools, equipment and machinery; measurements and layouts; planning; rigging; machinery and equipment installation; power transmission; bearings; packings; chains; blowers; hoists, cranes, and elevators.

A wide exchange of ideas through round table discussions and through actual work on various problems made the program particularly effective in developing new ideas and methods as well as in keeping the men reminded of correct established practices.

Throughout the course, practical application rather than theory was used to emphasize the correct



procedure and practices. When required for illustration purposes, actual shop conditions were recreated at the group meeting. There were comprehensive displays of the various tools and equipment used in millwright work.

At some sessions the men took equipment and machinery apart and rebuilt it, putting into use many of the tools and devices pictured in the accompanying photos. In addition, motion pictures were used for further illustrating modern millwright practices.

In keeping the plant operating safely and efficiently, the millwrights are exposed to numerous

hazards, so special attention is paid to safe practices and protective equipment. The accompanying illustrations show some of the displays of equipment used in connection with the course.

One table shows the various types of personal protection provided for the work. Eye protection is important and several types of goggles and face shields are used. For work in contaminated atmospheres there are dust respirators, gas masks and airline respirators.

One of the displays contains a few negative examples—tools which have become unsafe to use through misuse and neglect.



Dollars FOR NICKELS

By HILLIARD WILSON

HAVE you ever bought a genuine U. S. dollar for five cents? Have you ever tried to tell a fireman how to fight fire? Have you ever tried to tell a policeman how to catch a criminal?

These were some of the interesting experiences we had with our employee accident prevention program in the City of Oakland during the past year.

Dollars—the taxpayers' dollars doled out in accident costs—were the incentive for the city officials to adopt an accident prevention program that reaches into 21 departments of the municipal government.

Realization of the need for a safety program began at the top level of city government. The result has spread down through personnel so that every one of more than 300 supervisory employees has had formal safety instruction in classes supervised by a city-employed safety engineer.

Now each city department and division is making detailed monthly reports of accidents and holding monthly safety committee meetings to analyze the few accidents that do occur now and consider safety suggestions.

For example, at the March 10 meeting of the street department maintenance division safety committee, the monthly report showed only three accidents, none of which resulted in loss of time. Not content with merely holding the line, the members of the committee con-

With the aid of local industry and the NSC Chapter, the City of Oakland launched a systematic campaign for employee safety. For every dollar spent, the city saved twenty

sidered 21 safety suggestions ranging from distribution of fire extinguishers and first aid kits to equipping street rollers with warning horns.

For a number of years our claims investigator has been working with liability and compensation claims, and he is extremely cost conscious. About 13 months ago he came into our office to talk about accidents to city employees, frequency rates and accident costs. He had completed a laborious tabulation of all accidents involving city employees during 1948. For the first time we faced the cold facts.

The figures were shocking. It was hard to believe that the accident experience for our city government operations was more than three times that for an average industry. The amount of money that accidents were costing the

City of Oakland each day, 365 days for the last year, was staggering. Something had to be done. What? How?

We called on Clint Dreyer, managing director of the Eastbay Chapter of the National Safety Council. He told us nonchalantly that the city needed an employee accident prevention program. "It's simple," said Clint:

1. Appoint a safety coordinator for the city as a whole and one for each department.
2. Set up safety committees for the city and a committee in each department.

"But what are these coordinators and committees going to do?" we asked. "They won't know how to analyze hazards and unsafe working practices."

"They will when Homer Lambie and Bill Maring train them," said Clint. Lambie is director of train-



Oakland Fire Department lieutenants and captains meet for a safety class. More than 300 such classes for city employees were held last year.

HILLIARD WILSON is Assistant City Manager, Oakland, Calif.



Open paint cans stored near switch boxes were among the hazards corrected in Oakland's safety campaign. Paint shelves were rearranged and switches were enclosed.

ing and safety at Paraffine Companies, Inc., and Maring is a safety engineer and Lambie's associate.

That is the way it started in January, 1949.

Paraffine Companies, Inc., made Lambie available to the city on a part-time basis without cost, and we contracted for Bill Maring's services to accomplish our training program.

The first training conference, conducted by Homer Lambie, was for department heads, including the city manager. Homer will tell you that it was a little rough dur-

ing the first two or three meetings of this group. On this first conference rested the success of our proposed safety program. Management had to be enthusiastic about the program if it were to survive.

When you are vaccinated for smallpox, it either "takes" or it doesn't. Homer Lambie's safety scratches on the minds and hearts of the department heads of the city "took." We failed to anticipate, however, the reactions of the Police and Fire Department. The usual safety training conference deals principally with industrial jobs. "We have no carpenter



shops, paint shops or machine shops," protested the police and fire departments, and correctly so. The fact that the Police and Fire Departments were having a lot of accidents, however, was a matter of record. Few were industrial accidents, but all were occupational accidents—costly, time-consuming, and serious.

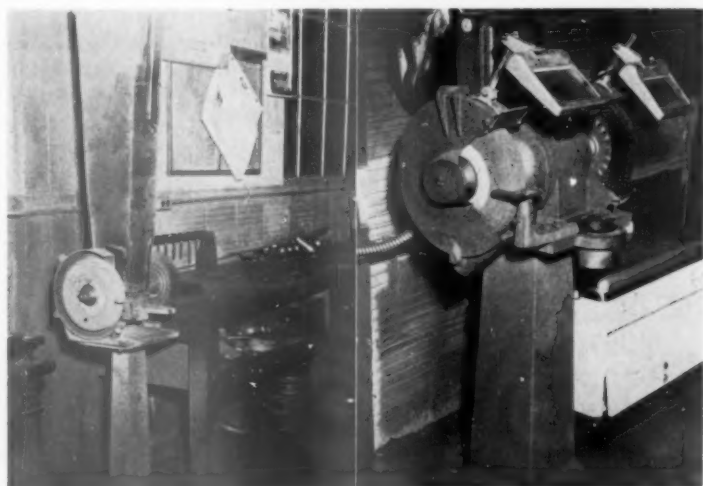
Starting with the officers in the Fire Department, Homer Lambie and Bill Maring conducted discussion conferences on specific accidents which the firemen had had and were having. These so-called discussion conferences developed into the best training conferences we have had.

The same plan has been used for the training of police officers. The training program is based on an analysis of Police Department accidents.

The present status of our accident prevention program is as follows:

1. Every supervisory employee

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Grinding and buffing wheel before and after. Eye guards and wheel guards have become standard equipment in shops operated by the city.

Do We Need a New

Yardstick for Safety Performance?

By D. C. STEWART

NO SUBJECT is more likely to stir controversy among safety men than yardsticks for measuring safety performance. Some feel that the frequency rate of injuries is the best possible single measure. Some even charge that efforts to discover better measures are no more than attempts to improve standings of companies or industries by juggling figures rather than by improved performance.

Others feel just as strongly that the frequency rate does not tell the whole story. A sound measure should take some account of the severity of injuries as well as the rate at which they occur.

In all this welter of argument and counter argument, surely we can agree on one thing. We must start with facts rather than with prejudice. If we can assemble a few relative facts, then try to inter-

pret them without bias, perhaps we shall get somewhere.

Explanations of the methods of interpreting the measures for safety performance are shown in the accompanying box.

There are three factors in the last equation. Two of them, the frequency rate and the severity rate, are well known. The third factor, the average days charged per injury, has been used very little. Yet it is just as important as the other two. Suggestions have been made to the American Standards Association committees that it be named as one of the standard measures along with the frequency rate and the severity rate. This move has been opposed by representatives from some companies and industries, possibly because it would spotlight an unfavorable aspect of their injury experience.

The equation in which the three measures appear is one of a type which occurs over and over again in industrial operations. For ex-

ample, suppose we want to measure the results of lumbering operations. We write the equation

Trees cut per day \times Average size of trees = Lumber cut per day.

In this equation the number of trees would correspond to the number of injuries; one day would be the time unit, corresponding to man-hours of exposure; average size of trees would correspond to the average days charged per injury, that is, the average severity, and lumber cut per day would correspond to the severity rate.

In appraising the results of lumbering operations, we wouldn't be satisfied to know only how many trees were cut per day. We would also want to know something about their size. A large number of trees cut per day wouldn't produce much lumber if they averaged little more than saplings in size. On the other hand, only a few trees cut per day might mean a great deal of lumber if the average size of trees that were cut was large.

We note also that the average size of trees cut is not an adequate measure of performance by itself, since it tells us nothing about the rate at which trees were cut. That rate might be two or twenty or more per day. But the product of trees cut per day and average size of trees, which is the lumber cut per day, tells us a great deal about how we have done. If we had to select one single measure of performance most of us would not hesitate. We would select the lumber cut per day.

If we follow the analogy back to injuries we would conclude that the frequency rate is the measure of the rate at which injuries are

D. C. STEWART is System Safety Supervisor, Niagara Hudson Power Corporation, Buffalo, N. Y.

INTERPRETING THE MEASURES

The frequency rate is the number of disabling injuries per million manhours worked. The formula is:

$$\text{Frequency rate} = \frac{\text{No. of disabling injuries} \times 1,000,000}{\text{manhours}}$$

The severity rate is the days charged per thousand manhours worked. The formula is:

$$\text{Severity rate} = \frac{\text{Days charged} \times 1,000}{\text{manhours}}$$

It will be a help to understanding of the meaning of these measures, and an essential to further discussion, to connect the frequency rate and the severity rate together in a single equation.

$$\begin{aligned} \frac{\text{No. of disabling injuries} \times 1,000,000}{\text{manhours}} &\times \frac{\text{Days charged}}{\text{No. of disabling injuries}} \\ &= \frac{\text{Days charged} \times 1,000,000}{\text{manhours}} \end{aligned}$$

Going back to the definitions of the frequency rate and the severity rate, this is seen to be:

$$\text{Frequency rate} \times \text{Average days charged per injury} = 1,000 \times \text{Severity rate}$$

occurring and the average days lost per injury is a measure of the severity of those injuries. The product of the two then must be a measure of both the frequency rate of injuries and their severity. In short, it must be the theoretically correct measure of over-all performance. But this measure is now called the severity rate, and the implication is that it is primarily a measure of severity and not of frequency.

It is unfortunate that the name "severity rate" was ever given to this measure. The true measure of severity is the average days charged per injury. The severity rate should more properly be called the weighted frequency rate or the performance index. It is, in fact, the frequency rate weighted for the severity of injuries that make up the frequency rate.

Now, we have been trying for years to combine measures of frequency and severity of injuries in a single measure. If the object of the search has been with us all the time why haven't we identified it as such long ago? There are probably two principal reasons. The first has been mentioned already. It is that this single measure of performance has been masquerading under the assumed name "severity rate." This has caused us to shy away from it as a possible single measure of performance.

The second reason is that, in the case of fatalities or permanent disablements, we now assign time charges to the year of occurrence that are based on the average expected working lifetimes of the victims. These heavy charges make the standard "severity rate" an erratic, unreliable index of comparative performance in one year even over very large man-hour exposures. This second point will be discussed in more detail later.

Comparative Performance

Some of the erroneous conclusions which can be reached by superficial interpretation of the standard rates may be illustrated by getting down to cases. The group experience of companies in

the same industry in four large eastern states is shown for the same year. These are all industrialized states, with comparable areas, types of populations, climate and other factors. There is no prior reason to believe that performances within these states should differ materially one from the other.

A number of interesting facts can be noted from Table I. The wide range of frequency rates among the 4 states is at once apparent. It is evident also that the frequency rates are determined principally by the frequency rates of temporary total disablements. The values of the "severity rates," on the other hand, are determined largely by the "severity rates" for fatalities and permanent disablements.

The most interesting point of all, however, is the inverse relationship between the frequency rates of temporary total disablements and the average days lost per tempo-

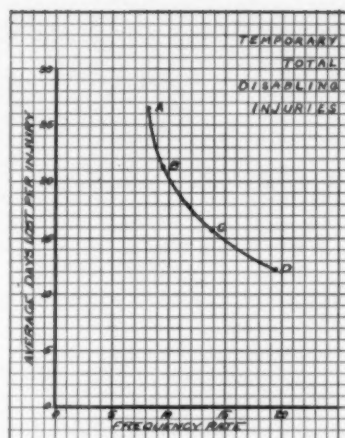


Figure 1. Relation between frequency rate and average days of disability per injury—permanent disabilities and deaths excluded—based on four statewide averages of a representative industry.

rary total disablement. Low frequency rates are accompanied by high average days charged per injury, and high frequency rates are accompanied by low average days charged per injury. This rela-

TABLE I

Injury Rates and Averages of an Industry in 4 Large Eastern States

FREQUENCY RATES	STATE A	STATE B	STATE C	STATE D
Fatality	0.20	0.32	0.14	0.13
Per. Total	0	0	0	0
Per. Partial	0.02	0.14	0.87	0.19
Temp. Total	8.29	9.52	13.81	19.41
All Injuries	8.51	9.98	14.82	19.73
AVERAGE DAYS CHARGED PER INJURY				
Fatality	6,000	6,000	6,000	6,000
Per. Total	0	0	0	0
Per. Partial	3,000	1,144	396	800
Temp. Total	26.5	21.3	15.9	12.2
All Injuries	177	226	95	59
SEVERITY RATES				
Fatality	1.22	1.90	0.85	0.78
Per. Total	0	0	0	0
Per. Partial	0.07	0.16	0.34	0.15
Temp. Total	0.22	0.20	0.22	0.24
All Injuries	1.51	2.26	1.41	1.17

TABLE II

Injury Rates and Averages (Temporary Total Disablements)

	STATE A	STATE B	STATE C	STATE D
(1) Frequency Rate	8.29	9.52	13.81	19.41
(2) Av'ge Days per Injury....	26.5	21.3	15.9	12.2
"Severity Rate"22	.20	.22	.24
= $\frac{(1) \times (2)}{1,000}$				

tionship is shown more clearly in Table II and in Figure I.

Remembering that,

Frequency rate \times Average days charged per injury = 1000 \times Severity rate.

we would expect this inverse relationship between frequency rates and average days charged per injury to result in "severity rates" (weighted frequency rates or performance indexes) of temporary total disablements that are about the same for all 4 states. Table II shows this to be true to a surprising degree.

The conventional interpretation of the facts shown in Table II might be:

"State A's severity rate of temporary total disablements is about the same as the other states, but its frequency rate is much lower. Therefore, being about equal on one count but better on the other, it is doing the best job of all, so far as temporary total disablements are concerned."

This reasoning is in error. The error lies in the fact that the "severity rate" is not the true measure of severity. It is a measure of both frequency rate and severity of injuries, which has been masquerading under the false name of "severity rate."

The correct statement of the meaning of the facts shown in Table II is:

"State A has the lowest frequency rate of temporary total disablements, but its average severity (days lost per injury) is highest, resulting in about the same over-all performance as the other states. State D has the highest frequency rate but its average severity (days lost per injury) is lowest, and it, likewise has about the same over-all performance as the other states. Similar reasoning applies to the records of the other two states. They are all about the same in real performance."

Why should such extreme differences in frequency rates and in average severities exist among states when they are all doing about the same job? A close study

Summary

1. One of the important measures of performance, the average severity, (the true measure of severity) is missing from the standard performance measures. It should be admitted to the family of statistical measures and given equal status with other members.

2. In calculating average severity, time charges for temporary total disablements should be entered at their full value, but time charges for permanent disablements and fatalities should be entered at 1/20 of their

schedule values for comparative performance purposes.

3. The standard "severity rate" has been misnamed, and as a consequence has been misinterpreted. A new name is needed. When schedule charges are properly weighted, the resulting modified weighted frequency rate or performance index is the best single measure of comparative over-all performance. It is the single measure which combines and gives due weight to both the frequency rate and the average severity of injuries. Neither the frequency rate nor the average severity, taken alone, tells the whole story.

4. The three recommended measures, expressed as equations, are:

$$\text{Frequency rate} = \frac{\text{No. of disabling injuries} \times 1,000,000}{\text{manhours}} \quad (1)$$

$$\text{Average severity} = \frac{\text{Days lost, temp. totals} + \frac{1}{20} \text{ Schedule charges}}{\text{No. of disabling injuries}} \quad (2)$$

$$\text{Weighted frequency rate (or performance index)} = \frac{(1) \times (2)}{1,000}$$

$$= \frac{\frac{1}{1,000} \times \text{Frequency rate} \times \text{Average Severity}}{\text{Days lost, temp. totals} + \frac{1}{20} \text{ Schedule charges}} \times 1,000$$

5. We do need new yardsticks for measuring safety performance.

of a large number of individual injury reports throws some light upon this question. Companies within all four states were reporting about their proportionate shares of more serious temporary total disablements. But companies within the low frequency states were reporting relatively fewer short time absences from work than companies in the high frequency states. This accounts for the inverse relationship between frequency rates and average days charged per injury.

These differences appear to have their origin to a large degree in differing compensation laws and differences in the interpretation and application of the laws. Such differences tend to make the frequency rate a measure of the local conception of what constitutes a reportable injury and the degree of control which can be exercised over time lost from less severe injuries, rather than a measure of the effectiveness of accident prevention efforts.

One of the purposes of the 1945

revision of the American Standard Method of Compiling Industrial Injury Rates was to divorce the definition of what constituted a reportable injury from state compensation rulings. After several years of operation under the new code we can honestly question whether the revision was able to get at the real causes of the differences. We still have them and in about the same degree as under the old code. Perhaps we can get nearer to equitable comparisons by overhauling our measures of performance than by endless code revisions.

Schedule Charges

Previous discussion has been confined chiefly to temporary total disablements. While the frequency rate of such injuries largely determines the magnitude of the frequency rate of all injuries, it was also noted that the schedule type of injury largely determines the magnitude of the "severity rate," where this type of injury has oc-

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CAUSE AND CURE



These examples are from reports of actual accidents. They list the causes and the steps taken to prevent recurrence



Fatal Fall

Worker suffered fatal injuries when he leaned over the edge of a coal briquet mixer to unclog caked coal dust and fell into the machine.

Correction: Guard rails were erected around upper rim of the mixer and workers were ordered to wear safety belts with tail lines tied off or held by an assistant when entering the machine.



Falls into Pit

Hotel maintenance employee failed to place warning at open manhole, after removing cover, and a pedestrian walked into open hole, breaking both legs.

Correction: Every employee was warned of his responsibility to mark or guard hazards he creates. Those required to use manholes were warned to enclose hole with temporary fence.

Flashback

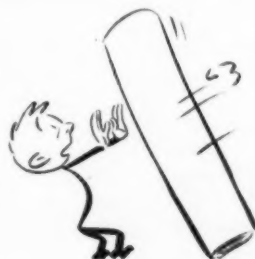
Boiler room helper used gasoline to dilute heavy fuel oil that spilled. Vapors reached firebox and ignited, flashback seriously burning the worker.



Correction: Workers were warned against use of low flash point solvents around open flame; told to use Stoddard's solvent in such cases and to wash down area with steam hose and water.

Sleeper

When helper removed crate that had supported roll of linoleum while unloading truck, the roll toppled over on him, breaking his ankle.



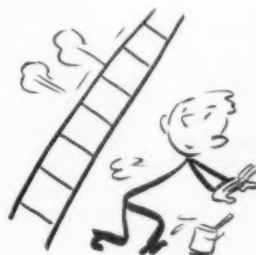
Correction: Shipping foreman instructed warehouse workers and drivers in proper methods of loading and unloading. Tie-backs were ordered for "sleepers" that are likely to tip over.



Germs Ignored

Employee scratched hand while putting wire rope clips on guy wire, but neglected to report for first aid treatment and infection caused lost time.

Correction: Foremen were told to be alert for indications that workmen were neglecting minor cuts and scratches and to emphasize frequently the necessity for prompt first aid.



Costly Wind

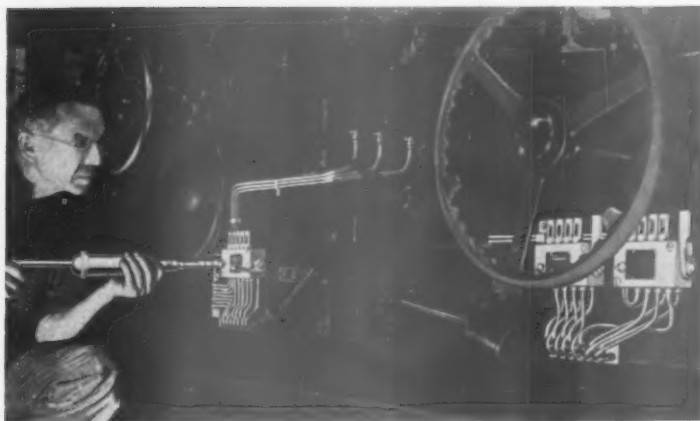
Roustabout leaned ladder against tank to be painted and stooped over to mix paint as wind blew ladder over on him, causing a broken hip.

Correction: Foremen of crews were told to confine tank painting to calm days, if possible, and to see that ladders are lashed at top when necessary to use them on windy days.

Foiling Friction

Modern lubricants and lubrication systems
restrain this firebug and thief of power

By WALTER E. MONTGOMERY



Modern lubricants, applied under pressure, reach the many remote bearings inaccessible to the hand oiler. (Farval Company).

PROPER lubrication removes one important cause of fires—friction—and it also helps to improve production and quality. In the textile industry it has been estimated that 90 per cent of the power consumed is used to overcome friction, leaving only 10 per cent for actual productive work. Clearly, the reduction of friction is a profitable field.

Selection of lubricating oils and greases is an engineering procedure requiring technical knowledge. Textile machinery manufacturers usually recommend suitable lubricants for the equipment they supply. However, it is outside their responsibility to designate all qualified lubricants or to cover local conditions requiring

special study by a lubrication engineer.

Every mill might well select some man on its engineering or mechanical staff to be responsible for the lubrication program. Such a man could soon obtain sufficient information and experience to repay the time spent. The mill would benefit from reduced fire hazards, better machine operation, lower maintenance costs, reduced power consumption, and improved products.

If bearings become worn and leak oil, there may be a temptation to use heavier lubricants, but this never corrects the fault. It may reduce leakage but it also increases power consumption and causes higher running temperatures. A worn bearing can't be repaired with heavier oil.

Lubrication problems in cotton mills are more complex than those

of many other industries. Large numbers of bearings, high speeds, vibration, contamination of bearings by ever-present lint and dirt all tend to complicate matters.

Improvements will require the combined efforts of machinery builders, lubricant manufacturers, and, most important, the mills themselves. Standardization of bearings and lubricants is the aim of the American Society of Mechanical Engineers and the American Standards Association.

A recent survey of 250 cotton mills disclosed that 40 per cent of them had never taken advantage of the services of a lubrication engineer. These mills reported 15 per cent more fires. Most oil companies are glad to advise industry regarding suitable types of lubricants and methods of storage and application.

One large New England mill, after tackling this problem in earnest, reported an annual gross saving of more than \$14,000. In contrast, a nearby mill, using the same oils and greases, admitted wasting more than half of the lubricants and didn't seem interested when lubrication was mentioned.

A plant which neglects lubrication soon finds itself rated a poor risk by the fire insurance company.

Progress Being Made

The Factory Mutuals have taken an active interest, both direct and through engineering societies, machinery manufacturers, and lubricant producers, in improving conditions in textile mills. Definite progress has been made although no coordinated program has yet been developed.

Safety engineers have realized for years that the oiler has a hazardous job. He is the lone wolf of industry. His job takes him to remote places where others seldom go. It exposes him to the hazards of moving machinery, it

WALTER E. MONTGOMERY is Consulting Safety Engineer, Quebec Asbestos Producers Association, Montreal, and General Chairman, Mining Section, National Safety Council.

involves climbing and gymnastics that can be duplicated only by a monkey, and a monkey needs a tail. Oilers have probably given safety men more gray hairs than any other class of workers. If you doubt it, follow an oiler around for just one shift.

The frequency and severity of accidents among oilers have stimulated studies to reduce exposure to hazards and many of these risks have become unnecessary. Bearings have always seemed inaccessible and ladder climbing is more the rule than the exception.

Keep the Oiler on the Floor

When you realize that many bearings require attention at least once a shift, it means that the oiler has to climb a ladder, give the grease cups a couple of turns and then climb down with slippery hands. The wonder is he is not involved in more accidents.

Years ago we were well aware of this problem and tests were made to see how far the old style grease cup could push cup grease through a quarter and three-eighth inch pipe in an effort to keep the oiler on the floor. Cold weather was a restraining influence to these tests and we were forced to give them up. Some of the temperatures went as low as 30 degrees below zero and three feet was our limit of grease cup extension.

Now that water-free greases and pressure fittings are available, we have made pipe installations to remote bearings in excess of 30 feet, with sub-zero weather no longer a serious factor. Bearings that in the past were conveniently forgotten are now being lubricated. Our maintenance records bear this out. Where extremely cold weather is encountered, a 50 per cent increase in pipe size is recommended.

Every bearing grease pipe extension saves the oiler 300 round trips a year, and if this remote control system is installed on only 100 bearings, we have saved the worker 30,000 ladder trips annually, with added assurance that

the bearings are receiving their required attention. Multiply that for a large industry, and you don't have to be an engineer to realize the monetary saving. It has reduced oiler accident exposure to a minimum.

In recent years systems of central lubrication have made great strides and there is much to be said of the benefits of these systems. One of the most important is the absolute safety of application that permits bearings and machinery to be lubricated while in motion. This eliminates the human element and its accompanying hazards, not to mention down time for lubrication.

While safety is being increased, costs are being lowered. It has been estimated that the saving in grease will average 50 to 70 per cent in the amount and cost of lubricant required.

In investigating accidents many seemingly unrelated facts are uncovered. Workmen become involved in gears, belts and pulleys and are injured. The uninformed and uninterested blandly state, "He shouldn't have done it—he shouldn't have been there—he must have done something wrong."

An investigation conducted several years ago showed that more belt and pulley accidents were occurring on Monday mornings in winter than on any other day. These were traced to the method of starting the mill.

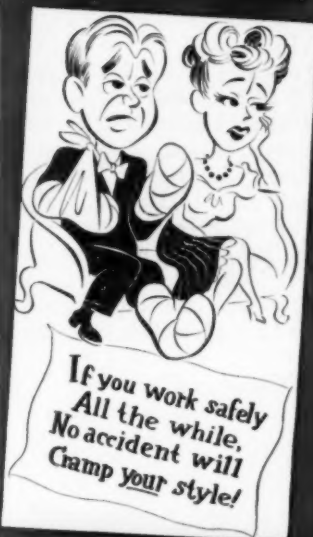
After the week-end shutdown, with the mill idle from Saturday night to Monday morning, sometimes in sub-zero temperatures, it was necessary to start almost every piece of equipment by hand, and only one at a time. I should add that bronze sleeve bearings were more the rule than the exception. The starting torque required of numerous bearings that were bound by frozen cup grease can well be realized.

This necessitated pulling on belts by hand, turning sprockets, chains and gears with bars and wrenches. All this, mind you, with the power on. Is it any wonder

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the LIGHTER SIDE

NATIONAL SAFETY COUNCIL



For a satisfactory life a man needs food, shelter, and something to brag about. — H. J. Haskell, *Kansas City Star*.



(Fiction)

STARS IN HIS EYES

By BILL ANDREWS

May 3, 1950.

The boy has stars in his eyes. Sometime during his course at Tech, he ran into a professor who was deeply convinced of the worth and merit of safety work. And last summer, when he was handling a transit on a bridge job, the boy helped to pry a screaming workman out from under a fallen beam. Most important, he could see clearly how the accident could have been prevented.

So he has glorified safety work in his mind and has, with a beautiful fervor, determined to give his life to it. As a start, he wants to come to work for me after he graduates next month. He is, as far as I can tell from his academic record and a personal interview, good material.

But I'm afraid of the stars in his eyes. I'm afraid of what will happen to that growing enthusiasm under the strain of routine, the frustration of compromises, the bitter taste of inevitable defeats.

So I'm trying to draft a letter to him—the kind of letter that will arm the boy with foreknowledge, that will not discourage him but

prepare him for discouragement. A letter, perhaps, like this:

Dear Harry,

There is no reason apparent to me why you could not become an excellent safety engineer. You have the intelligence, the training—as much of it as Tech can give you—the interest, and the humility which makes you realize that you still have most of your learning ahead of you.

You have been kind enough to say that you admire my record. If it is worth anything, let me tell you quite frankly that I, as of my first day on a safety assignment, was a less promising prospect than you are.

There is a much misused word in business today—the word “attitude.” And it is in the ill-defined area we call attitudes that I have my misgivings about you. I do not mean that you appear careless or mutinous or dissipated, which are the commonest meanings given to “attitude deficiency.”

The attitude you have which may be dangerous is your idealization of safety work.

I am not, I believe, a cynic. I could earn a living in other work, yet I have stayed with safety work for more than a decade. One of the principal reasons that I have done so is that I “like” (another misused word!) the work. There are some real and deep satisfactions of the type which appeal to your idealism.

But ignorant idealism is a stepping stone to disillusionment, and—let me be crudely frank—your idealism is very ignorant indeed. It is as ignorant as that of the sweet little girl who read about Florence Nightingale, but discovered in nurse training that she couldn't stand to handle bed pans.

You see the safety engineer as a guardian of the lives and health of his fellow men. He is, in a very true sense. *But he cannot permit himself the luxury of so viewing himself more than about five minutes a year.*

The other 364 days, 23 hours and 55 minutes, he is (if he is to be effective) a kindergarten teacher, a back-slapping glad-hander, a sharp organizational politician, a figure-grubbing statistician, a preacher, a detective, a flatterer and a bawler-out, a very tough-minded engineer, a budget-minded bureaucrat, a semi-pro accountant, an advertising man, and everlastingly a student learning a trade.

You speak of the sense of service—of the knowledge that men are well and happy because of your work. This is a completely false picture of the emotional life of the safety man.

It is emotionally (though not intellectually) false, because the dead have names and widows; the injured have voices you can hear screaming. The unhurt, the un-killed are nameless abstractions in statistical tables. You don't see your successes in safety work. *You do see your failures!*

Let me see if I can tell you what you would do if you became a safety engineer on my staff:

First, you would go through a painful process of adjustment to the applications of the engineering

principles you know only in theory; to the production forces with their often-justified skepticism of our ability to tell them how to do their jobs; to the high brass with their biases and preconceptions—some of them wrong, but nonetheless backed by authority; to your fellow safety staff men with their varying degrees of ability, knowledge, tolerance and jealousy; and, most of all, to me, with all the things that I am which make me hard to work with.

I would let you, at first, tail after me or Jim Mason on routine inspections. You would get very tired of turning over tags on fire extinguishers, of holding a light meter in dark corners, of noting in all solemnity on Form 6-S-B that Dept. 3-A's housekeeping had deteriorated from excellent to good because you saw three Coke bottles on a windowsill.

And even if you were able to see that such chore work was a basic element of a safety program (which it is), you would, sooner or later, encounter the situation where I would look at a scathing report you had turned in, frown, and tell you to rewrite it in less critical terms. To you that would seem like betrayal of principle. You won't know or believe that I have a complicated set of reasons for playing along with certain foremen who are doing something important I want done—that my playing along with them may mean, in detail, covering up shortcomings that should be exposed. I do that often—trading a gain of importance for silence on minor faults.

Then you will go out with us on investigations of accidents, sometimes on the run. You will feel heroic and noble, perhaps. You know the feeling from your own experience. But can you take it if we investigate, determine a cause, and then fail to act?

Believe me, Harry, that will happen. It is a hard lesson to learn that you cannot go stampeding off on special campaigns every time a man bleeds on your shirt. You

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The SAFETY VALVE

Nothing human is alien to me—TERENCE

A Matter of Words

For many years, the National Safety Council, the American Standards Association, and some other groups have been trying to get people to use the term "disabling injury" to describe those mishaps that count in the records.

These used to be called "lost-time accidents." After many years of arguing, it was finally agreed that a person suffered an injury as the result of an accident and it was the injury that really mattered.

As originally used, "lost time" meant absence from the job beyond the day or shift on which the worker got hurt. Now, certain types of injuries must be counted, and it doesn't matter whether the injured man does his convalescing on the job or at home.

Under the old system, a fellow with unusual fortitude and a burning desire to keep the department's score clear might keep on working, or at least go through the motions. But under present rules, it won't help the record.

Or he might spend his convalescent time in a hospital over the week end, and lose no actual time from the job. Even so, he's disabled and the injury counts. He would also be disabled if he were on his back at home but reporting is apt to be lax in such cases.

"Disabling injury" is the term. Both statisticians and editors would like to see you use it.

* * *

When the maples begin to leaf out and you can plant outdoors once more, thank God that you've lived to enjoy another spring.

—Richardson Wright:
"The Gardener's Bed Book."

Education does not mean teaching people what they do not know. It means teaching them to behave as they do not behave. It is painful, continual and difficult work to be done by kindness, by watching, by warning, by precept and by praise but above all . . . by example.

—JOHN RUSKIN

More than Emotion

Several years ago I had the good fortune to be on the mailing list of Antioch College and my files contain several copies of *Antioch Notes* for the years between the depression and World War II. In them are some of the wise and practical observations of Dr. Arthur E. Morgan, then president of the college.

What Dr. Morgan says about democracy's needs in the following quote can be applied to almost any phase of the art of living together:

"One reason why democracy is preached so much more commonly than it is practiced is that democracy demands from its followers more than emotion.

"To be successful, a democracy must have citizens who are stable and responsible in the handling of affairs; who are intelligent and informed enough to distinguish and to judge issues; and who love democracy well enough not only to die for it but to mark a ballot on election day and perform the other small duties of every day citizenship."

There's a lot of kitchen work in accident prevention, too.

Carman Fish

Benzene (Benzol)

Published by National Safety Council
Chicago, Illinois

1. Benzol is the common name applied to the technical grade of benzene (C_6H_6), an organic liquid generally obtained by fractional distillation of coal tar.*

2. Benzene is supplied commercially in five grades according to the amount of impurities present. These are reagent, thiophene free, nitration, industrial pure, and industrial 90 per cent. Production employees are exposed to benzene in crude material and in the coal tar light oil from which it is distilled, as well as to these five grades.

Characteristics and Uses

3. Benzene in its purest form is a pure colorless liquid with a rather pleasant aromatic odor somewhat like that of gasoline but readily distinguishable from it. The intensity of the odor varies considerably with the grade or purity of the benzene, but a person with a normal sense of smell can detect the vapor by odor in a concentration of about 75 to 100 ppm.

4. However, in an atmosphere containing benzene vapor the sense of smell quickly ceases to respond to that the odor is a very unreliable indicator of the concentration or even of the presence of benzene vapor.

5. Pure benzene boils at 80.1 C (176.2 F) and freezes at 5.5 C (41.9 F). The specific gravity at 20 C compared to that of water at

20 C is 0.88 for the liquid, and the vapor density compared to that of air is 2.73. Its flash point is -11.1 C (12 F), and the explosive limits are 1.5 to 8 per cent by volume in air. The ignition temperature is 538 C (1000 F).

6. The major impurities in commercial benzene are toluene and xylene. These substances are toxic but somewhat less volatile than benzene and somewhat less hazardous. Because the appearance and pleasant smell of benzene give no warning of its toxic effect and because a victim may become incurably poisoned before he feels ill, benzene is one of the most insidious poisons ever to find wide industrial use.

7. Benzene is an excellent solvent for fats, oils, resins, gums, rubber, and many other organic substances. It is therefore used to extract these materials from aqueous solutions or crude mixtures. It is used also in paints, varnishes, lacquers, adhesive cements, and paint removers.

8. In many of these applications its presence is often not declared upon the label, contrary to the agreement between the manufacturers and the United States Public Health Service.

9. The manufacturers of benzene under this agreement are obligated to apply labels like that shown below, to warn users against its hazardous characteristics. Under the agreement, similar labels must be applied to products for domestic consumption which contain 15 per cent or more of benzene.¹

BENZENE (BENZOL)

Danger! Extremely Flammable

Vapor Harmful—Poison

Keep away from heat, sparks, and open flame.

Keep container closed.

Use only with adequate ventilation.

Avoid prolonged or repeated breathing of vapor.

Avoid prolonged or repeated contact with skin.

10. In the past, benzene has been used in large quantity in blends with gasoline for automotive fuel. The need for benzene as the starting material for an enormous variety of synthetic chemicals may largely eliminate its use as motor fuel.

11. A partial listing of industries and trades in which the use of benzene may be expected is given in paragraphs 12 through 21. The trades named are examples of those in which precautions against benzene poisoning should be taken. Each operation which uses benzene must be carefully studied, and precautions must be based on the specific conditions of use.

12. The coke and gas industry is the major source of benzene. Workers who may be exposed are:

- benzene still men
- by-product operators
- laboratory workers
- tank inspection and maintenance men
- drum fillers
- tank car loaders

This Data Sheet is one of a series published by National Safety Council. It is a compilation of experience from many sources. It should not be assumed that it includes every acceptable procedure in its field. It must not be confused with American Standard Safety codes; federal laws; insurance requirements; state laws, rules and regulations; and municipal ordinances. Reprints of all Data Sheets are obtainable from National Safety Council.

* The name *benzene* must not be confused with the name *benzine*. The latter is still sometimes applied to a mixture of hydrocarbons obtained from petroleum, but it is archaic and misleading and should not be used.

13. The *chemical industry* consumes a large amount of benzene. Workers who may be exposed are:

- nitrobenzene makers
- aniline dye workers
- explosives workers
- nitrocellulose workers
- phenol makers
- pharmaceutical workers
- denatured alcohol workers
- maintenance men or others working in the benzol area

14. Because benzene is an excellent solvent for printer's ink, the *printing and lithographing industry* commonly uses benzene as a solvent and cleaner. Those who may be affected are:

- layout men (from rubber cement)
- lithographers
- mimeograph operators
- multigraph operators
- photoengravers
- pressmen and helpers
- typesetters and cleaners

15. The *paint industry* uses benzene as a solvent in paints, especially quick-drying enamels and asphalt paints. Those who may be exposed are:

- asphalt paint makers
- enamel makers
- enamellers
- lacquer makers
- varnish makers
- varnishers
- stain makers
- lacquerers
- paint makers
- paint remover makers
- shellac makers
- stainers
- airplane dope makers and users
- painters

16. The *rubber industry*, especially those branches which make rubberized fabrics, has many operations in which there will be serious benzene poisoning unless complete protection is provided. Many rubber companies have substituted other solvents for benzene in the applications which are most difficult to safeguard. Workers who may be exposed to benzene are:

- raincoat makers
- cementers (rubber)
- compounders (rubber)
- dryers (rubber)
- reclaimers
- overshoe makers
- rubber sheet makers

- oilcloth makers
- vulcanizers
- rubber cement makers

17. The *dry cleaning industry* uses benzene to some extent, especially for "spotting." Dry cleaning workers and spotters may be exposed.

18. The *adhesives industry* incorporates benzene into certain glues and cements, usually those stated to be waterproof. Glue workers and adhesive workers may be exposed. Those using glues and cements which contain benzene should get a full description of their toxic hazards and set up suitable precautions for their use.

19. The *petroleum industry* blends benzene with fuels and uses it to extract certain products from petroleum oils. Those who may be affected are blenders (motor fuel) and paraffin wax makers.

20. *Laboratories* use benzene in various kinds of analytical work. Chemists and technicians may be exposed.

21. The *coatings industries* commonly use a great deal of benzene as a solvent. Workmen engaged in the production of artificial leather, patent leather, oilcloth, linoleum, and shade cloth may be exposed.

Benzene Poisoning

ACUTE POISONING

22. *Causes and characteristics.* Benzene poisoning may be acute or chronic. The acute form is incurred most commonly when men enter enclosed spaces such as tanks which contain very high concentrations of benzene vapor. It may also be caused by benzene stored in closed rooms. This form of poisoning is rare, and its dangers are more widely recognized and more immediately apparent than are those of chronic poisoning.

23. In acute benzene poisoning the symptoms result from the powerful anesthetic action of the vapor. The victim usually has little warning after entering the contaminated atmosphere. Although the odor may be very strong, it is

not sufficiently irritating to force withdrawal from the closed space.

24. By the time the victim begins to feel dizzy and unable to control his movements, he is usually too weak to escape. He staggers, appears drunk, falls to the ground and rapidly becomes unconscious. If not rescued, he becomes more and more deeply anesthetized. In a short time, depending on the concentration of the vapor, his breathing becomes gradually slower until the respiratory center is paralyzed and death results.

25. If the victim is rescued before death occurs, he may be in any stage of unconsciousness or apparent drunkenness. He should be removed to fresh air, and if breathing has ceased, artificial respiration should be begun at once. A physician should be called immediately and oxygen administered as soon as it is available.

26. Recovery will exhibit the stages of acute poisoning in reverse. From a state of coma, the victim will progress to movements, muttering, and struggling. Upon regaining consciousness he will tend to become excited, irrational, and stubborn. He must be restrained at this time from running about. Dizziness and headache are the last symptoms to disappear. Medical supervision of all such cases is imperative to prevent severe after-effects.

27. *Prevention.* Workmen should never enter closed spaces where benzene vapor may be present until appropriate tests have shown that the air is safe to breathe. As an additional precaution, workmen entering such closed spaces should be equipped with hose masks or self-contained oxygen breathing apparatus and should wear safety belts with life lines.

28. The respirator and life line should be used even though the tank or other enclosed place has been thoroughly steamed out and

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Washington Greets "Mr. and Mrs. Safety"



With the Capitol dome as a backdrop, Carl and Betty Baker—"Mr. and Mrs. Safety"—receive the congratulations of Representative Paul W. Shafer, of Michigan. In recognition of the 2,000,000 man-hour safety record at the Battle Creek plant of the Oliver Corp., Carl was selected to represent all employees as "Mr. Safety." The Bakers received an all-expense trip to Chicago and Washington.



Officers of The President's Conference on Industrial Safety meet "Mr. and Mrs. Safety" at the U. S. Labor Department in Washington. Left to right: Vincent P. Ahearn, director of the Conference and executive secretary, National Sand and Gravel Association; Mrs. Baker; Mr. Baker, and William L. Connolly, director of the Department's Bureau of Labor Standards.



TO Carl A. Baker came the honor of being chosen as "Mr. Safety" of the Oliver Corporation's plant at Battle Creek, Michigan. He represents "the man who didn't get hurt" during the company's 2,000,000 man-hours of operation without a disabling injury since January 13, 1949. Accompanying the honor was a handsome set of luggage and a whirlwind two-day tour of the Nation's capital for Carl and his wife, Betty.

"Mr. Safety" was selected from the thousand employees by drawing. At a meeting of the plant safety committee, all clock numbers were placed in a keg and the number drawn identified the man to be chosen for the honor. The winner was a 25-year old assembler in the corporation's packaging department.

Ed Hessmer, safety director at the Battle Creek plant, and Mrs. Hessmer accompanied Carl and Betty on the trip. At Chicago they visited the head offices of the company and traveled from there to Washington by train.

In the capital they were taken on a personally conducted tour of that part of the White House that is still in use during the remodeling. They saw President Truman's empty office but the President was vacationing in Florida at the time. At the Capitol building they met

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Getting the Facts About Occupational Dermatoses

By LEONARD WEBER, M. D.

An occupational dermatosis is a pathological condition of the skin for which the occupational exposure can be shown to be a major causal or contributory factor.

The above definition was adopted in 1939 by a committee on industrial dermatoses of the Section of Dermatology and Syphilology of the American Medical Association. Physicians practicing in the state of Illinois are guided by the Illinois acts of 1937, which define occupational dermatoses as follows:

In this act the term "occupational disease" means a disease arising out of and in the course of the employment. Ordinary diseases of life to which the general public is exposed outside of the employment shall not be compensable, except where the said diseases follow as an incident of an occupational disease as defined in this section.

A disease shall be deemed to arise out of the employment only if there is apparent to the rational mind upon consideration of all the circumstances, a direct causal connection between the conditions under which the work is performed and the occupational disease, and which can be seen to have followed as a natural incident to the work as a result of the exposure occasioned by the nature of the employment and which can be fairly traced to the employment as the proximate cause, and which does not come from a hazard to which workmen would have been equally exposed outside of the employment.

The disease must be incidental to the character of the business and not independent of the relation of the employer and employee. The disease need not have been foreseen or expected but after its contraction it must appear to have had its origin in a risk connected with the employment and to have flowed from that source as a rational consequence.

DR. LEONARD WEBER is professor of dermatology, University of Illinois, Chicago. This article has been adapted from a paper presented at the 26th Annual Midwest Safety Show of the Greater Chicago Safety Council.

During the recent readjustment period many employees have been forced to accept new occupations. Some of them as a result of their work will have an occupational dermatosis. These employees are entitled to an examination at the expense of the employer to determine whether or not their cutaneous disease arises out of the work. In most instances an employee has a reason for assuming that his occupation caused his eruption. Many of them know all the answers as to why or when a dermatosis arises out of the occupation. Some of them have learned the answers through underground channels.

It goes without saying that some employees will do almost anything within their power to receive free medical care for an ordinary disease of life. The physician must be on the alert because he must give a fair opinion. In order to do

this a thorough examination is necessary and this should include a complete history. The first part of the history should contain a detailed story of the accident or disease. This means, briefly, "What, in the opinion of the employee, caused the present disease of the skin?" Employees are entitled to express an opinion.

It is always advisable to inquire about previous occupations and previous diseases of the skin. Often one can form an opinion about the sensitivity of the individual's skin by the patient's past experiences. It is most important to pay considerable attention to the present industrial complaint. How long has the disease been present? When was the patient first employed by the present employer?

From that one can gain the incubation period of the disease. Next, on what sites did the eruption appear first? The majority of occupational diseases of the skin appear first on the hands and forearms because these are the areas of maximum exposure to occupational irritants.

Some exceptions should be made to this rule because there are many employees who are suffering from dermatoses caused by oils, and

—To page 70

Congress Program Taking Shape

The program is rapidly taking shape for the 38th National Safety Congress and Exposition which will be held in Chicago October 16 to 20.

Since the close of the 37th National Safety Congress, the newly elected officers and committees have been busy making plans for this year's Congress. Many programs are now nearing completion and some will be ready well in advance of the deadline which has been set for June 15 this year.

The more than 150 sessions of this year's Congress will be divided among four hotels—the Stevens, Congress, La Salle and Morrison. Registration desks will be maintained at all four hotels.

In setting up the schedule of dates and hotels for the various sectional, divisional, subject, and general sessions, the Congress Committee has been guided by past experience and mutual interests, as well as availability of meeting rooms. The latter problem has been a serious one because of the increasing size of the Congress and the fact that simultaneous conventions sometimes tax the facilities of hotels.

Due to the increased size of this year's Safety Exposition, the combined facilities of the Exhibit Hall of the Stevens and the Casino Room of the nearby Congress Hotel will be used.

For Distinguished Service

Recent presentations of the National Safety Council's
Award of Honor for Distinguished Service to Safety

Stars indicate number of awards since the first.

Consolidated Vultee Aircraft Corp.

Fort Worth Div., Fort Worth, Tex.—Injury frequency rate reduced 13 per cent and severity rate 69 per cent in 1949 as compared with 1948. The 1949 injury frequency and injury severity rates were one-third less than the group averages. Award presented March 25, 1950 by the Fort Worth Safety Council.

Forstmann Woolen Co.

★★★
Passaic, N. J.—The 1949 frequency rate was only 14 per cent of the group average, and the injury severity rate was but 34 per cent of such average. The award was presented April 30, 1950 by John S. Cuthbert, field representative, Eastern Region, NSC.

The Goodyear Tire & Rubber Co.

Akron, Ohio (All domestic plants)—Injury frequency rate was reduced 39 per cent and the severity rate 20 per cent in 1949 as compared with 1948. The award was presented April 5, 1950 by Ned H. Dearborn, president, National Safety Council.

Johnson & Johnson

★
Chicago, Ill.—Injury frequency rate reduced 35 per cent and severity rate 30 per cent in 1949 as compared with 1948. The 1949 injury frequency rate was only 17 per cent of the group average, and injury severity rate was 18 per cent of such average. The award was presented April 14, 1950 by Roy G. Benson, senior engineer, Industrial Department, NSC.

Longview Fibre Co.

Longview, Wash.—Injury frequency rate was reduced 35 per

cent and severity rate 49 per cent in 1949 as compared with 1948. The 1949 injury frequency rate was only 14 per cent of the average—injury severity rate but 23 per cent of such average. The award was presented April 15, 1950.

Monsanto Chemical Co.

Central Research Department, Dayton, Ohio—For operation without a disabling injury from July 7, 1947 through December 31, 1949. Award presented March 21, 1950.

Mound Laboratory

Miamisburg, Ohio—Injury frequency rate reduced 67 per cent and severity rate 98 per cent in 1949 as compared with 1948. The 1949 injury frequency rate was only 8 per cent of the group average and the severity rate but 9 per cent of such average. The award was presented March 21, 1950.

United States Army

★★
Washington, D. C.—An army-wide award for an outstanding safety performance during the year 1949 in civilian and military operations. The award was presented at the Pentagon on March 29, 1950 by Ned H. Dearborn, president, National Safety Council.

New Standards for Rubber Equipment

Four new specifications for rubber protective equipment used by electrical linemen have been approved as American Standards. These cover: insulator hoods, blankets, sleeves, and line hose.

These standards were developed by a committee of 15 national

organizations sponsored by the American Society for Testing Materials and the Edison Electric Institute under the procedures of the American Standards Association.

The fact that rubber and compounding materials of prewar high quality are again available brought about the preparation of this new standard which replaces a 1945 wartime edition.

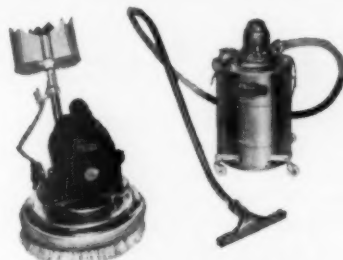
One of the principal changes is an increase in tensile strength. For both insulating hoods and line hose the minimum limit for tensile strength has been increased from 1200 psi to 1600 psi; for insulating blankets from 1400 psi to 2500 psi, while for the insulating sleeves the increase is from 1800 psi to 2500 psi. Correspondingly, the elongation and set have both been changed in the new edition. For example, in the case of the line hose and insulator hoods the elongation at rupture has been changed from not less than 400 per cent in 2 in. at rupture (2 in. stretched to 10 in.) to not less than 350 per cent in 2 in. at rupture (2 in. stretched to 9 in.) while the set in 2 in. following an elongation of 150 per cent (2 in. stretched to 5 in.) has been changed from a maximum of 0.5 in. to 0.25 in. (1/4 in.).

The wartime specifications contained the safe working voltage (volt rating) as part of the title of each standard. However, as the safe working voltage varies under different climatic conditions it was decided to replace the "volt rating" with the phrase "Proof test 10,000 volts, 3 minutes," for example, to indicate that this is the test voltage under laboratory conditions.

Wherever possible, the standards now permit the use of water electrodes for making dielectric tests on rubber protective equipment as well as previously specified metal electrodes.

The man who does not read good books has no advantage over the man who can't read them.

*With Dispenser
for Hot Waxing*



*With Water Tank and
Vacuum for Rug Scrubbing*



*With Pad
for Steel-Wooling*

THE MOTOR-WEIGHTED MACHINE THAT GIVES YOU *8-Way Adaptability!*

Those who need a motor-weighted floor-maintenance machine will find that they can do more—and thus save more on labor costs—with a 600 Series Finnell. This general-purpose Finnell can be used to wet-scrub, apply wax, polish, scrub rugs, steel-wool, dry-scrub, sand, and grind!

A Feather-Touch Safety Switch provides complete automatic switch control. Switch works with either hand from either side of handle. When handle is released, machine stops. Self-propelled . . . the machine glides over the floor with virtually effortless guidance. Horizontally-mounted motor and correct distribution of weight afford truly balanced operation.

Engineered to Give Added Protection

The 600 Series Finnell gives you the advantage of two-way speed reduction. Multiple V-belts are utilized ahead of the speed reduction gear case to alleviate strain and provide extra protection for motor and gears. The machine has G. E. Drip-Proof Capacitor Motor . . . Timken Bearings . . . ruggedly constructed worm drive in extra-capacity leak-proof gear case, lubricated for 2500 hours. Smooth and noiseless in performance . . . a precision product throughout. Four sizes: 11, 15, 18, and 21-inch brush diameter.

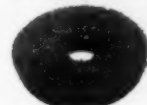
There's a Finnell man nearby to help train your maintenance operators in the proper use of Finnell Equipment. For consultation, demonstration, or literature, phone or write nearest Finnell Branch or Finnell System, Inc., 2205 East St., Elkhart, Ind. Branch Offices in all principal cities of the United States and Canada.



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Brush Rings
and Discs



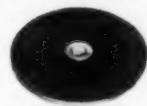
Polishing Brush



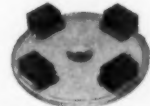
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Steel-Wire Brush



Sanding Disc



Carborundum Disc

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES
IN ALL
PRINCIPAL
CITIES

Four Steps to Eye Safety

WHEN the eye protection program was started at the U. S. Naval Ordnance plant at Alexandria, Virginia, on November 1, 1947, eye injuries began to drop. And since October 21, 1948, no eye has suffered injury.

Without eye protection the story would have been quite different. The accompanying photograph de-

support of the program by all workers, who now thoroughly appreciate the benefits derived.

Areas considered eye hazardous are those in which there are machines using cutting tools, causing chips to fly; those in which air agitation causes flying particles of sand or similar substances (such as sandblasting), and areas where

caustics or hot liquids might splash.

It was realized that areas not normally hazardous might become so by temporary operations, such as the use of portable power tools. In such cases, all personnel in the area must wear eye-protective devices.

After hazardous areas are designated, eye protective equipment is furnished without cost to the employee. Those who wear corrective glasses are sent to an optometrist who prescribes the lenses which are then made up as safety glasses with sideshields.

Plano spectacle type glasses with sideshields or monogoggles are worn by those who do not require prescription lenses. All fittings, adjustments and repairs are made by the plant.

Regulations governing the wearing of safety glasses are enforced by plant orders, violation of which may result in disciplinary action. Interest in the plan is maintained by monthly meetings of supervisors, by daily five-minute announcements over the public address system, and posters.

"Noted with appreciation and congratulations" by the chief of the Navy's Bureau of Ordnance—the Alexandria Ordnance plant's record in eyes saved.

SAFETY GLASSES SAVED THE EYES OF THESE EMPLOYEES FROM FRAGMENTS, FLYING GLASS AND HOT SOLDER.

"EYES SAVED"
AT THE NAVAL ORDNANCE PLANT
ALEXANDRIA, VA.

BEGINNING NOVEMBER 1st 1947
WHEN THE EYE PROTECTION PROGRAM
WAS PUT FULLY INTO EFFECT
THERE HAVE BEEN NO EYE INJURIES
SINCE OCTOBER 21st 1948
OUR EMPLOYEES BEST PROTECTION
A BARRIER BETWEEN HIS EYES HIS JOB
and A LIFE TIME OF MISERY.

LLOYD HABRON
SAND BLAST

J.A. KISSELEFF
BROKEN TAP

HERBERT AUBREY
SAND BLAST

FRANK DUNN
BROKEN DRILL

JOE MANSBOROUGH
SAND BLAST

W.H. DEVORE
FILE

R.B. ALLVIN
BROKEN TAP

THOS. RADCLIFF
AIR GAUGE GLASS

R.E. CASSIDY
HOT SOLDER

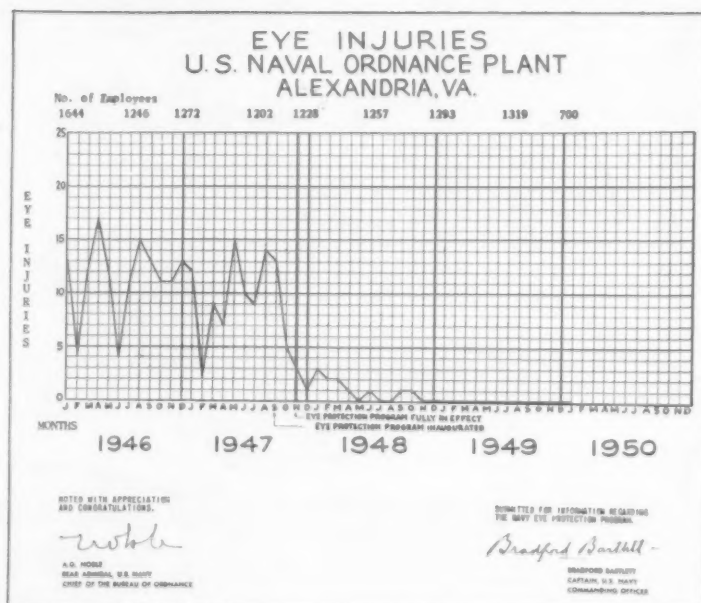
ROBT. MILLS
BROKEN DRILL

Twelve case histories of eyes saved were used in preparing this display.

picts twelve of the many instances where eyes have been saved since the program was started.

The program was started at the request of the Navy Department which has been carrying on an energetic campaign for the prevention of eye injuries at all naval establishments. Control of hazards has been accomplished through the following steps:

1. Designating eye hazardous areas.
2. Providing eye protection for all personnel entering these areas, including visitors.
3. Rigidly enforcing rules for wearing the equipment furnished.
4. Developing and maintaining



Keep floors safe!

safe!

stairs

Keep

Keep ramps safe!



Keep All Walkways Slip-Proof With

tread-sure

The Plastic Abrasive Brush-Coating

Horn Tread-Sure produces a heavy antiskid surface on wood—concrete—or steel deck flooring. It is an abrasive-filled plastic brush-coating—simple to apply. It is resistant to gasoline, alcohol, oil and grease and many types

of acids. Whether the surface is wet, dry or oily it provides a non-skid safety footing, preventing falls.

Designed for exterior as well as interior use, it may be brush applied over other paint or direct to unpainted surfaces. Used as it comes from the container. Available in three colors: Battleship Grey-Red-Green.

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NS

THE ACCIDENT BAROMETER

Prepared by the Statistical Division, National Safety Council

All Accidental Deaths

The trend of accidental deaths in January was favorable. The fatality toll was approximately 6,800, or 7 per cent less than the total of 7,300 for January a year ago. Most of the reduction occurred in public non-motor-vehicle deaths, but deaths from occupational and home accidents also decreased. There was a small increase in motor-vehicle fatalities over January last year.

Motor-Vehicle Deaths

The January death total for motor-vehicle accidents was 2,430, an increase of 4 per cent over the January, 1949 total of 2,340. Compared to 1948 it was an increase of 11 per cent.

The death rate per 100,000,000 vehicle miles was 7.7, a 5 per cent decrease from the 1949 rate of 8.1 and 36 per cent below the 1941 rate of 12.1.

Of the 44 states reporting for January, 20 had fewer deaths than last year, one had the same number, and 23 had more deaths. Cities with populations over 10,000 reported a decrease of 8 per cent from January, 1949. Of the 470 cities reporting, 98 showed decreases, 259 had no change, and 113 reported increases.

Regional changes from 1949 in the January death totals were:

North Atlantic	+ 6%
South Atlantic	+ 10%
North Central	+ 29%
South Central	— 5%
Mountain	+ 30%
Pacific	— 27%

Occupational Accidents

There were approximately 900 deaths from occupational accidents in January, a 10 per cent decrease from January last year.

The average frequency rate (disabling injuries per million man-hours) in seven sectional accident prevention contests conducted by the National Safety Council was

7.42, a 10 per cent increase over 6.76 for January, 1949. The frequency rate for community safety council inter-plant contests was 7.75, a decrease of 12 per cent from last year. In these contests the severity rate (days lost per thousand man-hours) was 0.34. This was a 17 per cent decrease from January last year.

Public Deaths

The January death total for public non-motor-vehicle accidents was 900, a reduction of 18 per cent from the January 1949 total of 1,100. Most of the decrease occurred in deaths from transportation accidents, but deaths from falls, drownings, and firearms accidents also decreased. Increases were recorded in fatal burns and in unclassified accidents. All age groups showed some decrease with the greatest improvement recorded for persons 15 to 24 years old and children under 5 years of age.

Home Deaths

The home accident death toll for January was 2,700, a decrease of 300 deaths from January last year. A sizable reduction occurred in mechanical suffocation deaths and moderate reductions were re-

ported in fatal poisonings, burns and falls. However, deaths from firearms and the miscellaneous unclassified accidents were more numerous than last year. Aside from moderate increases in deaths of persons 15 to 24 years old and persons 45 to 64 years old, all other age groups showed some reduction from January, 1949 with the greatest decrease recorded for children under 5 years of age.

Approve New Methods of Moving-Stairway Protection

Two alternate methods of protecting moving stairway floor openings have been added in the new tenth edition of the NFPA Building Exits Code, which is announced by the American Standards Association as an American Standard. These are a rolling shutter method and a spray nozzle method. Before revision, the code provided only a "sprinkler-vent" method, which is a combination of an automatic exhaust system with air down draft of 300 feet per minute or more, and an automatic water curtain.

Automatic self-closing rolling shutters that completely enclose the top of each moving stairway are now permissible providing they meet specifications outlined in the code. This method, however, is not acceptable between basements and street floors.

The spray nozzle method includes an automatic smoke or fire detection system. Spray nozzles must be of the open type and produce a solid conical spray pattern. They must be capable of completely covering floor openings with a dense spray, delivering $2\frac{1}{2}$ gallons of water per square foot per minute through the floor opening. The water supply must be separate from that for automatic sprinklers.

The new code also clarifies requirements for manually operated fire alarm systems and has major revisions in requirements for hospitals and sanitariums.



National Society for Crippled Children and Adults, 11 S. LaSalle St., Chicago 3, Ill.

More than 3/4 of a million men "answer the whistle" every day in the automotive industry. As in any crowd, more of these men wear Thom McAns than any other shoe.



Here's the Safety shoe men want!



S-4355—Comfortable moccasin type in deep copper-toned brown. Hand laced for extra coolness. Full leather sole and rubber heel. One of four Thom McAn moccasin styles.

There's real styling in Thom McAn's comfortable moccasin-type Safety Shoes. They combine the foot protection men need with the eye-appeal men want! Because Thom McAn is America's No. 1 Shoe, workers everywhere *know* Thom McAn and wear Thom McAn Safety Shoes willingly. A good reason why *you* should make these Thom McAn Safety Shoe styles available to your men to help keep safety records *safe*!

SOLD 2 WAYS

1. Stocked for your men in Thom McAn stores.
2. Sold direct to plants.

Details of this service, plus information on the 4-way employee purchase plan, and the Thom McAn safety shoe features, should all be on your desk. Just write us and we'll see that they get there.

THOM MCAN SAFETY SHOE DIVISION
25 West 43rd Street, New York 18, N. Y.

National Safety News, May, 1950



A DIVISION OF MELVILLE SHOE CORPORATION



Industrial Health

Highlights in Industrial Medicine, Hygiene and Nursing
Compiled by F. A. Van Atta, Industrial Department, NSC

Pollution Control

INDUSTRY AND POLLUTION ABATEMENT. By Edward J. Cleary, Water and Sewage Works 97:119-121 (March, 1950).

The Ohio River Valley Water Sanitation Commission is composed of representatives from each of the eight states bordering the Ohio River who signed a compact for pollution control in June of 1948. In addition there are three Federal commissioners appointed by the President of the United States. The commission objectives are to be carried out so far as possible through cooperation with the regulatory agencies of the states signing the compacts.

The compact calls for minimum treatment consisting of "substantially complete removal of settleable solids and the removal of not less than 45 per cent of the total suspended solids . . ." in the discharged wastes. If more complete treatment is to be required the commission must hold public hearings on the question prior to issuing any regulations.

The commission has the power to institute legal proceedings to force compliance with its regulations if not less than two commissioners from each of not less than five states agree to such action.

While it seems that enforcement of pollution control on firms in the Ohio River Valley will put them in a less advantageous competitive condition than firms in other parts of the country it is quite possible that this is not the case. While there is no doubt that the waste treatment process will be expensive it can also be argued that the industries will gain an advantage in the reduction of cost of their water supplies. Further studies may also result in the isolation of valuable by-products

from what has been waste material up to now. This has already happened in more than one instance. Actually an answer to this question will require a great deal of more intensive study than it has had in the past.

The commission is not setting up a research organization of its own but it will attempt to offer help to industries in the solution of their pollution control problems. It has already fostered and encouraged a cooperative investigation with the Wallace and Tiernan Co., the Armco Steel Corp. of Middletown and the Ohio State Department of Health on the control of phenolic wastes.

The commission feels that through such cooperative enterprises as this one the people of the Ohio River Valley will have clean waters again.

Butanol Exposure

A TEN-YEAR STUDY OF BUTYL ALCOHOL EXPOSURE. By J. H. Sterner, H. C. Crouch, H. F. Brockmyre and M. Cusack. The American Industrial Hygiene Association Quarterly 10:53-59 (September, 1949).

There have been a number of observations of the eye irritation due to normal butyl alcohol and it has been variously reported that the throat and eyes are irritated by concentrations of 25 p.p.m. to 50 p.p.m. but that there was no particular systemic effect below 100 p.p.m.

The present study is an attempt to evaluate the actual hazard from a normal butanol atmosphere by study of the effect on employees of known concentrations around a baryta coating operation in which the coating suspension consists of barium sulfate in normal butyl alcohol and water.

In this instance the concentra-

tions of normal butanol in the air at the various work stations have been determined at frequent intervals for ten years. The concentrations varied around 100 p.p.m. in most of the areas, being generally somewhat high in the early years of the study and being reduced gradually over the ten years. In the first year the results averaged somewhat over 200 p.p.m.

Sixteen individuals were exposed in this department at the beginning of the study, of whom 15 were still employed in the plant at the end of the ten years and four were still on the coating operation. Over the ten-year period the size of the force had gradually been increased until it was about 100 at one time and was 59 men exposed at the end of the study.

The studies of the men included periodical physical examinations including x-rays of the lungs and rather extensive clinical laboratory examinations and a study of the absences of the individuals exposed to butanol as compared to the absences of people exposed in other parts of the plant but not subject to butanol. The group in the butanol exposure showed considerably less absences, both total and absence due to illness, than the average for everyone in the plant. Their ratio of total absences to absences due to illness was about the same as the average for the whole plant.

In the early part of the study with the concentration averaging slightly over 200 p.p.m. there were occasional cases of eye irritation, some of which were severe enough to be temporarily disabling. After the concentrations had been reduced to an average of about 100 p.p.m. there were no further symptoms of this sort.

There were no other physical signs or symptoms which could be attributed to the exposure to butanol.

Over the ten-year period there was one instance of an individual asking to be transferred from this

—To page 115

canvas at its

best



resists

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WATER
WEATHER
MILDEW
WEAR

FIRE-CHIEF® products are manufactured under U. S. Patents No. 2,044,176, No. 2,299,612 and other patents, all owned by William E. Hooper & Sons Co.

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Stronger than Steel

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—resin impregnated. It's remarkably tough—so tough we had to devise new tortures in place of conventional tests to measure its full ability to protect heads. This Hard Boiled Hat is as handsome as they come, in new colors and white . . . or a glow-in-the-dark finish.

EVERYTHING
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IN SAFETY

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A GENUINE
HARD BOILED HAT

MFG. BY
E. D. BULLARD CO.
ST. U.S.A.

Hard Boiled Hat

FIRST in Head Protection since 1919

More Resilient—This crown is drum-like in its resiliency. We had a heck of a time making a dent in it with ordinary test objects. The hammocks, too, are like hydraulic shock absorbers.

Lighter weight—lighter by a full ounce than former hats, which is another way of saying wearing comfort is again improved.

Cooler to wear of any protective hat made. Laboratory tests, simulating sun's rays, prove that this hat is cooler than any you've ever worn . . . important to any outdoor worker on any job. Job efficiency increases with employee comfort. Floating hammock permits air circulation, encourages further cooling. For winter, snug-fitting, quickly interchangeable liners protect on even the rawest day.

Lifetime resiliency—Retains full resiliency indefinitely. Will not deteriorate or become brittle with age.

Impervious to moisture. High dielectric strength. Passes all dielectric tests.

Choice of color—White or grey are standard. Also available are red, green, or practically any color on special order. Color is impregnated—all the way through—will not fade or deteriorate.

Save money!—One size fits all heads, reduces inventories. Fully adjustable headband and hammock—self-shaping for comfort. 6-second hammock and headband assembly change. Genuine leather headbands optional.

Start saving money today! \$4.00 will get you the finest head protection ever built. (Costs less in quantity.) Write

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San Francisco 3, California

Distributors in principal cities

THE HONOR ROLL

Records of operation exceeding 500,000 man-hours, or one year, if exposure exceeds 250,000 man-hours, without a disabling (lost-time) injury are invited.

American Bemberg Corp.

Elizabethton, Tenn.—April 28, 1949 to February 28, 1950; 2,000,000 man-hours; continuing.

Industrial Rayon Corp.

Covington, Va., Plant—November 9, 1949 to March 15, 1950; 1,188 employees; 791,110 man-hours.

North American Aviation, Inc.

Los Angeles Plant—December 24, 1949 to February 12, 1950; 3,275,307 man-hours.

Sharp & Dohme, Inc.

Philadelphia Plant — June 8, 1949 to February 16, 1950; 1,632,388 man-hours.

Stromberg-Carlson Co.

Rochester, N. Y.—13 weeks; 1,299,154 man-hours.

U. S. Plywood Corp.

Algoma Plywood & Veneer Co., Algoma, Wis.—March 19, 1949 to November 30, 1949; 949,173 man-hours.

Flammable or Inflammable?

Many organizations, including the National Safety Council, have adopted "flammable" to designate materials that are easily ignited and burn with unusual rapidity. In law, however, the National Fire Protection Association points out, the word "inflammable" persists.

Now, after 25 years, the Congress of the United States has given official sanction to "flammable," the National Fire Protection Association reports in its *Fire News*. The NFPA calls attention to Chapter 39 of Public Law (80th Congress, Section 835, approved June 25, 1948, effective September 1, 1948). Here the word "flammable" is used to replace "inflammable" with reference to Interstate Commerce Commission regulatory powers.

The Civil Aeronautics Board adopted the word "flammable" in its Revised Regulations on Transportation of Explosives and Other Dangerous Articles (Civil Air Regulations, Part 49, 7-20-49).

IN THIS SAFETY BELT TEST

Safe-Hi Won 96 TO 1



DROPPED 24 FEET
DID NOT BREAK THIS SAFE-HI
SHOCK ABSORBER BELT



300 lbs. x 24 ft.
= 7200 ft. lbs.

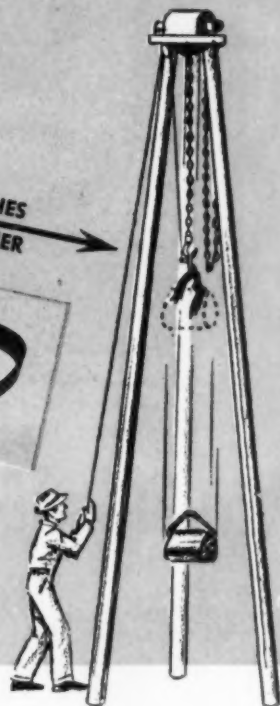
DROPPED ONLY 3 INCHES
AND BROKE THIS LEATHER
SAFETY BELT



300 lbs. x 1/4 ft.
= 75 ft. lbs.

THE DIFFERENCE IS JUST

96 TO 1



In the Safe-Hi booth at the 1949 National Safety Congress, public demonstrations were made of relative safety of various types of belts, by means of a steel tripod drop-testing machine.

Each belt was buckled around a 300 lb. iron weight and dropped to the end of a steel cable.

Belts of 2 inch heavy harness leather with single tongue buckle failed in 12 inch drops. Drops were successively reduced until, with *three inch* drops this type of belt continued to fail. In contrast, Safe-Hi Shock Absorber Belts *held without failure under seven foot drops.*

Later, in public tests at Denver, instead of the tripod a 50 ft. railroad crane was used in order to get a long enough free fall to further prove the life-saving power of Safe-Hi Shock Absorber Belts. A stock model construction belt with standard Unalyn shock absorber was buckled around the same 300 lb. test weight and subjected to a *24 foot drop test—without failure.*

FOR FULL INFORMATION

on "Safe-Hi" line of Construction Belts
and Window Cleaners Belts

SEE YOUR SAFETY APPLIANCE DEALER...OR WRITE

ROSE MANUFACTURING CO.

Makers of famous SAFE-HI Ladder Shoes

1731 Arapahoe St. Denver 2, Colo.



Eighth grade school children learn how linemen avoid injury on the job. This program of demonstrating on-the-job safety is part of a program launched by the Atlantic City Electric Company in cooperation with the schools. This demonstration is being conducted by Fred T. Ellenberg, safety director (left) and John T. Connelly, lineman.

Their Friend — the Lineman

C LIMBING has a fascination for most youngsters. They like to climb trees and poles and they are fascinated by the sight of linemen at work.

So, the Atlantic City Electric Company decided, the lineman should be able to carry a convincing safety message to school children. He is the man who knows that no job is so urgent, no service so important that he can't take time to observe the precautions prescribed for the job.

Such a program has been adopted by the company in conjunction with the public and parochial schools of the territory. At 25 assemblies in 19 schools, John T. Connelly, lineman, and Fred T. Ellenberg, safety director, have been lining up the youngsters to help the safety cause. In doing so, the boys and girls help themselves, their families and their community.

The story is presented by two individuals—a lineman and the division manager. The lineman wears his pole-climbing equip-

ment, including rubber gloves and sleeves. During the presentation he shows the equipment and explains its use and importance. The division manager helps the discussion by asking an occasional question. An outline has been prepared as a guide for the presentation.

In introducing the lineman, the manager reminds the children of the importance of safety and that their education in accident prevention will continue when they leave school and enter business or industry.

The purpose of these lessons is not make the youngster afraid of electricity. Rather, it is to show him in a friendly way that electricity is useful and not dangerous when treated with respect and caution.

Children are particularly interested in the lineman's equipment. As he explains it, the lineman brings in the safety angles.

Pole climbers, for instance, are necessary in climbing poles safely. He tells of the importance of keep-

ing the spurs sharp, of checking them frequently for length, and examining the straps.

He tells his audience how he looks over the pole before climbing, looking for checks, cracks and obstructions. He explains, too, that for an emergency job at night in a storm he isn't always able to see obstructions on a pole. Children can help by not putting basketball hoops or old tires on pole steps.

Then the lineman exhibits his pole safety and body belt, tells how he inspects them for cracks and cuts, and explains how he places the pole safety belt over a crossarm, rack or other devices. If his spurs should cut out, the belt will prevent his falling.

While talking the lineman has been wearing his leather gloves. The youngsters are told that he keeps them on while climbing; it protects his hands against splinters and cuts. Then he shows them the rubber gloves he puts on when he approaches the wires.

The rubber gloves, he explains, are given a daily air test and a monthly electricity test. They are tested for 10,000 volts, although 4000 is the maximum voltage used.

The manager then asks the lineman whether he uses any protective rubber equipment other than the gloves and sleeves.

The lineman then displays a section of line hose, a pig, pin hook and rubber blanket. The use of this equipment is explained. During this description of the equipment, the manager brings out the desired information by asking the lineman appropriate questions.

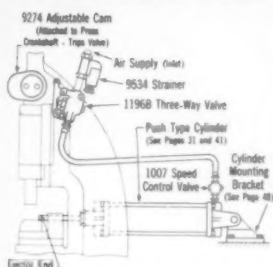
"You use a great deal of protective equipment," says the manager. "Does this mean that electric wires are dangerous?"

"No," replies the lineman, "Electricity is safe. But like many other things, it must be properly handled. It should be respected, not feared. The only time electricity is dangerous is when you make yourself part of the circuit."

—To page 52

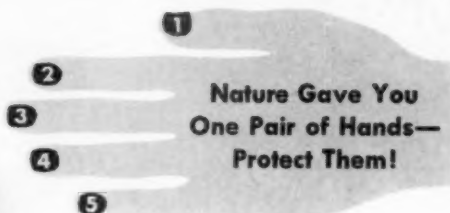
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HERE ARE **5** OF THEM



HOW TO EJECT HEAVY PIECES

When work cannot be ejected by air blasts, the new Schrader Cylinder Knockout Set is recommended. Packaged complete as shown. Cam can be adjusted to operate knockout cylinder at any point during the press cycle.



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- 7** Reduces operator fatigue
- 8** Safer operation
- 9** Saves air
- 10** It's *inexpensive* to buy

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Look for machines using continuous air blasts, they are blowing \$\$ dollar bills to the atmosphere. Put these \$\$ back into productive use by installing Schrader Air Ejection Sets.

Schrader Air Ejection Sets are surprisingly inexpensive. They are packaged complete—can be installed by any mechanic in a few hours. And when installed you have a shipshape job with which no makeshift job can compete or compare.

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PRODUCTS
CONTROL THE AIR

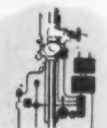
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STANDARD HEAD



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Whatever your needs for fire protection—indoor, outdoor or special hazard—Blaw-Knox engineers are prepared to design and install a system of suitable type to fit your requirements. They will make a survey of your fire hazards, secure your insurance underwriters' requirements, prepare preliminary layout of a system and submit an estimate of the cost of installation without obligation.

**Deluge Systems, Wet Pipe Systems, Dry Pipe Systems, Water Spray and Fog Systems, Rate-of-Rise Sprinkler Systems, and Carbon Dioxide Extinguisher Systems.*

BLAW-KNOX SPRINKLER DIVISION
OF BLAW-KNOX CONSTRUCTION COMPANY

829 Beaver Ave., N.S., Pittsburgh 12, Pa.

Offices in Principal Cities

Fallen power wires come in for a word of caution. "Don't touch them," warns the lineman. "Call or have someone call the electric company."

Another topic is kites and model planes. Accidents may occur if these are flown near overhead wires. The metal control wire on model airplanes, a wet kite string or a string with metallic strands will act as a conductor of electricity.

In addition to the risk of serious injury if a kite string or airplane control wire should tangle with power wires, there is also the danger of interrupting light and power service to hospitals, factories and homes.

One of the series problems of the electric company is maintaining the street lighting system. When lamps are broken by stones, BB guns or rifles, streets may be darkened and hazards created, and employees must stop other necessary work to make repairs.

During the hunting season equipment and lines are sometimes damaged by gun shot. Some of this is accidental but some is probably the result of target practice when game is scarce.

Broken lights and other equipment must be repaired by a man going up a pole, the children are reminded. While repairing lines is a normal part of the work and carried on under stringent precautions, there is always the possibility of accident.

Substations are described with a warning against playing ball too near them. This equipment is enclosed with a fence or wall but there have been accidents when people have climbed over or dug under fences or walls and have come in contact with energized equipment. These accidents have caused not only personal injury but also interruption to electric service.

Frequently such objects as barrel hoops, pieces of wire, balls and kites are found in these enclosed areas.

"If your ball or kite should land in one of these enclosed areas, please do not try to recover it," the manager warns. "Call the elec-

tric company. Or better still, tell your friend, the lineman, and he will help you."

A standard DANGER—HIGH VOLTAGE sign is displayed with an appeal to the youngsters to heed all warning signs.

The demonstration is concluded with a brief summary of essential precautions and a reminder that the lineman is their friend and always willing to help them.

Shielded from Danger

"Good old face shield—it saved my eyes!"

That was all Frank M. Eatchel could say when the emery wheel



on which he was grinding a valve seat broke and a large piece struck his face shield.

Frank is employed in the salvage shop of the Utah Oil Refining Company, Salt Lake City. His motto is "Be safety minded—not blinded."

A lady passenger was taken on a tour of inspection by the ship's captain during an Atlantic crossing. Finally she was escorted into a large compartment in which were stored several boxes of sky-rockets.

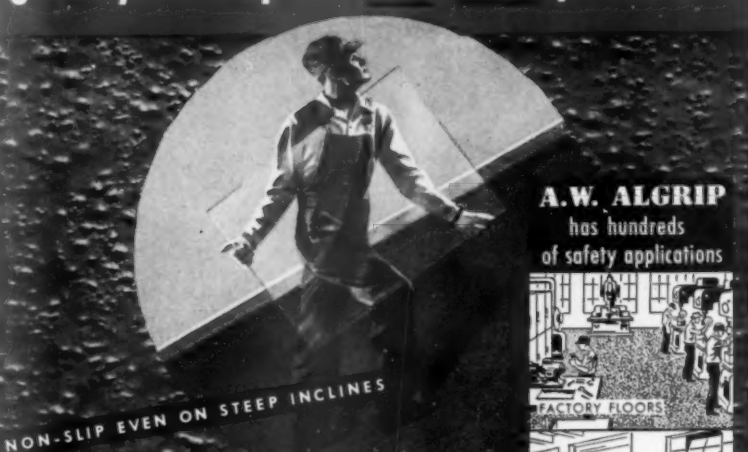
"What are these for?" she asked.

"They're to send up in case the ship is ever in distress," explained the captain.

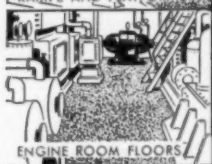
"Well," remarked the woman, "I don't think that is any time for a celebration."

When opportunity knocks at the door, some people are out in the back yard looking for four-leaf clovers.—Vaughn Monroe, Radio Program.

Only one rolled steel floor plate gives you complete anti-skid protection



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has hundreds
of safety applications



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ALGRIP
ABRASIVE ROLLED STEEL
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There's nothing like it, absolutely nothing like A.W. ALGRIP. It's the one and only Abrasive Rolled Steel Floor Plate. A.W. ALGRIP is made by rolling tough abrasive grain (the same type used in grinding wheels) as an integral part of the upper portion of steel floor plate. Result: A floor plate that's truly non-slip even when wet or on steep inclines. It keeps men's feet safe and secure.

Because Algrip is rolled steel, it is stronger than other abrasive floorings and withstands severe punishment without cracking or chipping. Then, too, thinner sections may be used without reducing load carrying capacity.

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Other Products: PERMACLAD Stainless Clad Steel • A.W. SUPER-DIAMOND Floor Plate • Billets
Plates • Sheets • Strip • (Alloy and Special Grades)

COMING EVENTS

In the Field of Safety

May 2-4, Chicago

Twenty-seventh Annual Midwest Safety Show. (Hotel Sherman). Joseph F. Stech, manager, Greater Chicago Safety Council, 10 North Clark Street, Chicago 2.

May 2, Allentown, Pa.

Twenty-third Annual Eastern Pennsylvania Safety Conference. Harry C. Woods, executive secretary, Lehigh Valley Safety Council, 602 East 3rd Street, Bethlehem, Pa.

May 3-5, Charlotte, N. C.

Twentieth Annual North Carolina State-wide Industrial Safety Conference (Hotel Charlotte). H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh, N. C.

May 4-5, Baltimore, Md.

Maryland Safety and Health Conference and Exhibit. (Lord Baltimore Hotel). Joseph A. Haller, Director of Safety, State Industrial Commission, Equitable Bldg., Baltimore 2, Md.

May 11-12, Oklahoma City, Okla.

Oklahoma State Safety Conference. (Skirvin Hotel). Glenn V. Carmichael, manager, Oklahoma Safety Council, 1600 N. W. 23rd, Oklahoma City, Okla.

May 18-19, Duluth, Minn.

Lake Superior Mines Safety Council, 26th Annual Conference. (Hotel Duluth). John A. Johnson, supervising engineer, U. S. Bureau of Mines, 18 Federal Bldg., Duluth 2, Minn.

June 1-3, Roanoke, Va.

Sixteenth Annual Virginia State-wide Safety Conference. (Hotel Roanoke). William M. Myers, managing director, Richmond Safety Council, Allison Bldg., Richmond 19, Va.

June 1-3, Longview, Wash.

15th Annual Western Forest Products Safety Conference. (Monticello Hotel). Byron Oyster (chairman), Weyerhaeuser Timber Co., Box 1645, Tacoma, Wash. C. R. Rustemeyer, Canadian Forest Products, Ltd., 510 West Hastings, Vancouver, B. C.

June 7-9, Pittsburgh, Pa.

Twenty-fifth Annual Western Pennsylvania Safety Engineering Conference.

(William Penn Hotel). Harry H. Brainerd, executive manager, Western Pennsylvania Safety Council, Chamber of Commerce Building, Pittsburgh 19, Pa.

June 12-13, Fargo, N. D.

Third Annual North Dakota Safety Conference. Paul Drew, safety director, North Dakota State Highway Dept., Bismarck, N. D.

June 18-21, Boise, Idaho

Western Safety Conference. Paul V. Black, president, c/o Idaho Compensation Co., Boise, Idaho.

June 30-July 2, Chicago

American Association of Railway Surgeons. (Drake Hotel). Chester C. Guy, M.D., secretary, 547 West Jackson Blvd., Chicago 6.

Sept. 14-15, York Harbor, Me.

Twenty-third Annual Maine State Safety Conference. (Marshall House). A. F. Minchin, director, Industrial Safety Division, Department of Labor and Industry, Augusta, Me.

September 19-21, Cleveland, O.

Twelfth Annual Ohio State Safety Conference. (Hotel Carter). Carl L. Smith, secretary-treasurer, Suite 508, 2073 E. 9th St., Cleveland 15, Ohio.

Oct. 16-20, Chicago

Thirty-eighth National Safety Congress and Exposition. (Stevens Hotel). R. L. Forney, general secretary, National Safety Council, 20 North Wacker Drive, Chicago 6.

Award "Oscars" for Year's Safety Films

Three motion pictures and three sound slidefilms have won "Safety Oscars" as the outstanding films on safety produced in 1949.

Six additional films were given honorable mention awards and two others were singled out for special commendation by the National Committee on Films for Safety, representing 20 national organizations. The committee makes annual awards for safety films in the fields of traffic, occupational, home and general safety.

No theatrical motion pictures were entered in this year's competition. Outstanding film in the occupational class was "Safe Clothing," produced by Canadian Department of Labor for the National Film Board of Canada.

The top sound slidefilm in this group was "Here's How," produced for the Zurich-American Insurance Companies by Paragon Pictures, Inc.

In the traffic and transportation division, "Last Date," sponsored by Lumbermen's Mutual Casualty Co. and produced by Wilding Picture Productions, was chosen as the outstanding motion picture. "Rough Riders," produced for Zurich-American Insurance Companies by Paragon Pictures, won the sound slidefilm award.

General Motors Corporation took top honors in the general safety field with "Safe as You Think," a motion picture produced by the Jam Handy Organization. "Servant or Destroyer," the top sound slidefilm in this class, was produced by the American Petroleum Institute.

No top award was made in the home safety field.

Honorable mention awards went to the following motion pictures: "Yarding Logs," produced by Rarig Motion Picture Co. for Pacific Northwest Loggers Association, in the occupational class; "Are You Safe at Home," produced by Dominion Fire Prevention Association (Canada) for National Film Board of Canada, and "Cooking: Kitchen Safety," produced by Centron Corp., for Young American Films, in the home group; "Fire in Miniature," produced by Master Motion Picture Co. for Liberty Mutual Fire Insurance Co., in the general field, and "It's Up to You," produced by the Standard Oil Co. of California, in the traffic and transportation class.

"Easy on the Eyes," a sound slidefilm produced for the National Safety Council by Sarra, Inc., won an honorable mention in the occupational field.

Singled out for special commendation were two motion picture trailers, both on traffic safety. "It's Suicide," a series of 14 one-minute shorts produced by Cascade Pictures of California for Fox West Theatres, and "The Age

—To page 70

PROTECTION PROBLEM?

MODEL R-45—Natural rubber, palm coated, standard weight, knit wrist, curved finger, with nonskid finish for use in general utility work.



MODEL R-46—Natural rubber, fully coated, standard weight, knit wrist, curved finger, liquid proof, nonskid finish for utility work.

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Gloves will fit
any job *better!*

Many and varied are the dangers to which employees' vital hands are exposed in industry today. And many and varied are the brands and types of gloves available for their protection. To be sure you are providing the best protection possible, you owe it to your workers *and* your business to see the Hood line first!

Shown here are two of the many types of Hood gloves available . . . gloves that have resulted

from the combined efforts of experienced chemists, engineers and technicians, using the most modern equipment and techniques to give Hood a reputation for reliability *second to none!*

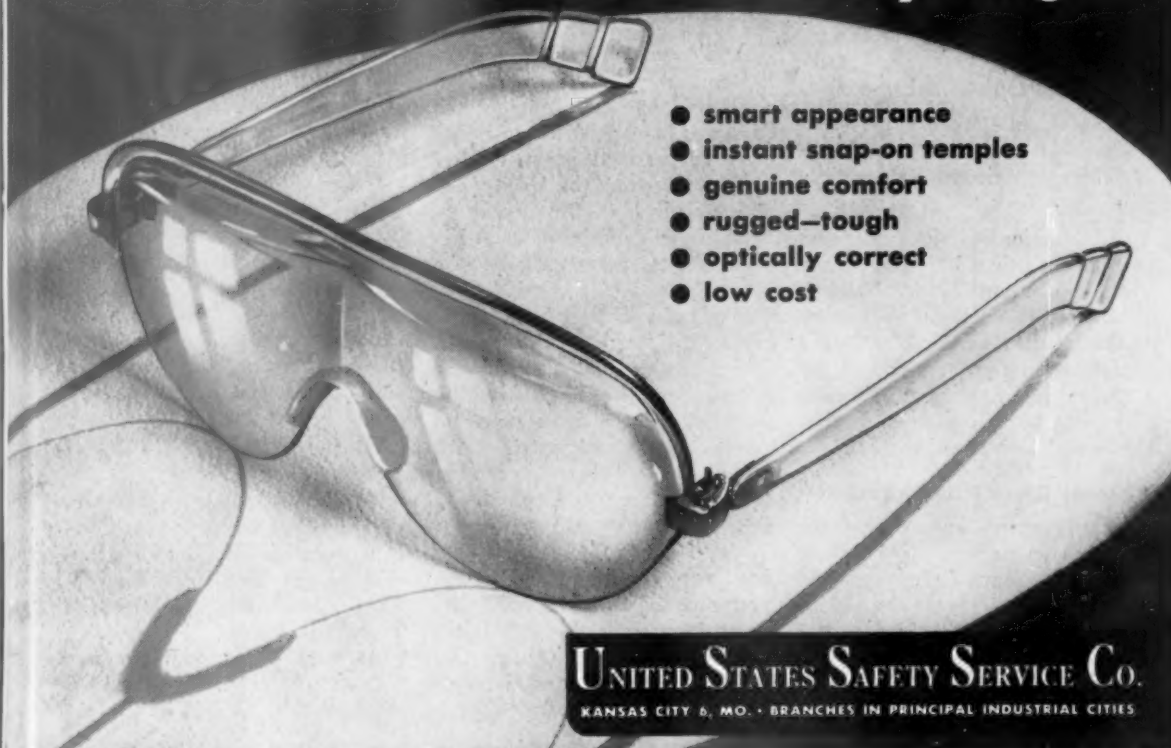
Let this reputation be your guide for solving your protection problem *better!* Write for catalog today showing the Hood line of Neoprene, Rubber or Plastic coated gloves for *every* job in *all* industries!

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Green Cross News . . .

Activities of Local Safety Councils and Chapters

Field Work Increases

More than 50 cities have had on-the-ground consultation by members of the Field Organization staff during the three months ending March 15. Speaking engagements and conferences with local council and chapter managers and officers on organizational, program, finance and other problems, were scheduled in the following cities: Richmond, Va.; Providence, R. I.; Springfield, Mass.; Pittsburgh, Pa.; Wilmington, Del.; Charleston, W. Va.; Concord, N. H.; Elmira, Johnson City, Albany and New York City, N. Y.; Boston, Mass.; New Haven, Conn.; Pittsfield, Mass.; Cleveland, Dayton, Hamilton and Middletown, O.; Atlanta, Ga.; Tampa and Jacksonville, Fla.; Shreveport, Baton Rouge and New Orleans, La.; Muncie and Ft. Wayne, Ind.; Mobile, Ala.; San Jose, San Francisco, Oakland, Los Angeles, Pasadena and Martinez, Calif.; Portland, Ore.; Seattle and Spokane, Wash.; Tucson and Phoenix, Ariz.; Denver, Colo.; and Oshkosh, Appleton and Ashland, Wis.

The Field Organization also helped in state safety plans in Louisiana, Arizona, Connecticut and New York.

In addition to these personal visits, more than 100 requests for help in setting up local safety councils in smaller communities, were handled by mail, with full information given. A copy of the "Organizing for Safety" booklet was sent to each local group that requested assistance.

Local Council Development

Thirty-seven new community safety councils in important cities and towns have been organized throughout the country since 1942. These include such cities as Atlanta, Denver, Phoenix, Mobile, Spokane, Youngstown, San Fran-

cisco, Oakland, Shreveport, Racine, Des Moines, Fort Worth, New Orleans, Dayton and Tampa. Three states have also established safety councils during the past eight years, Idaho, Utah and West Virginia. In 1942 there were 120 active local councils. In 1949 there were 250 local organizations affiliated with the National Safety Council as member, chartered councils or chapters.

The estimated gross income of these organizations in 1942 was \$700,000; today it is approximately \$1,500,000. Eight years ago there were about 80 full-time staff persons employed by local councils. A recent survey shows that the number is close to 200 today. The steady progress in the community safety field during recent years is highly encouraging to the Conference of Local Safety Organizations and the Field Organization of NSC.

Educating Board Members

A "Permanent File" for the enlightenment of the officers and executive committee of the Los Angeles Chapter, NSC, containing some 20 pages of essential information regarding the chapter, its activities, by-laws, finances, membership and official roster, has been sent to each member of the chapter's executive committee. The material in loose-leaf form is enclosed in a letter-size manila folder on the front of which appears a large Green Cross emblem in color, followed by a statement directed to the recipient in which it is pointed out that: "As a member of the Executive Committee of the Los Angeles Chapter of the National Safety Council you have both a responsibility and an opportunity to serve the public interest in a cause that affects the welfare and well-being, that touches the lives and interests

of every member of the community . . ."

On the first inside page of the folder the complete roster of the committee appears in bold type, with business titles, addresses and telephone numbers. On the opposite inside page is a clear-cut statement of the functions and activities of the Council, its organizational structure, how it is supported and how the money is spent. These three pages of printed information on the folder constitute an important part of "Your Permanent File," as it is captioned.

It is an excellent idea that has made a big hit with the busy Los Angeles leaders who make up the chapter's official roster.

Frank L. Jones Honored

Upon his retirement from official duties with the Greater New York Safety Council after more than 10 years of outstanding service as that organization's president, Frank L. Jones was honored recently by special appointment from the Board of Directors as "Honorary Chairman" of the Council. A scroll was presented to Mr. Jones, paying eloquent tribute to his years of constructive safety accomplishment for the Council, starting when he was a "moving force" in setting up the organization in 1936. A significant sentence reads: "Over the years his efforts on behalf of the Council have been not only assiduous and faithful, but have been animated by that warm spirit of man which has so endeared him to his associates."

Harold K. Kramer, assistant vice-president of the Borden Company, succeeds Mr. Jones as president of the New York Council. Kramer has been a member of the Board of Directors for the past eight years. Thomas J. Watson was

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Enduring Esteem



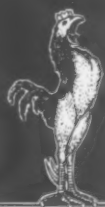
THE COLLEONI

Andrea del Verocchio—1496
Campo Santi Giovanni e Paolo, Venice

UNVEILED at Venice in March, 1496, "this bronze of Colleoni shares honors with Donatello's Gattamelata as one of the greatest equestrian statues in the world."¹ Almost miraculous is the execution of "the 15th century armor Colleoni wears, the saddle and harness, all beautifully elaborated like goldsmith's work."² The acclaim for this famous masterpiece, still echoing after four and a half centuries, is a phenomenal tribute to Verocchio's matchless skill and artistry.

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¹History of World Art,
Upjohn-Wingert-Mahler



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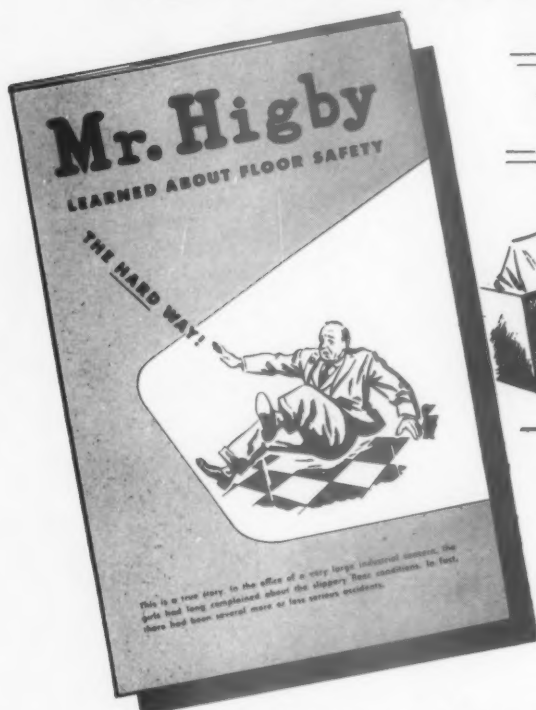
Manufacturers of Fine Industrial Skin Cleansers

²Trademark of G. H. Packwood Mfg. Co.

*In addition to PAX-LANO-SAV HEAVY DUTY, PAX also offers the following powdered or granulated quality skin cleansers: PAX CORN-TEX • PAX HYSPEED • DICTATOR SPECIAL PURPOSE • BORAPAX • SUPER-X • VELVAPAX LIGHT DUTY • OFFICE-PAX • PAX MECHANICS. Also available are PAX WATERLESS and PAX HECTO INK CLEANSING CREAM • PAX SKIN CLEANSER ECONOMIZER • DISPENSERS and many other fine PAX Products.

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This book...in 10 minutes... prevented 1037 accidents!



Reading time to learn how: 60 seconds

Of course there was more to it than that. But it started when the office manager of a prominent company read a copy of *Mr. Higby Learned About Floor Safety the Hard Way*.

In its pages he learned the solution to a long-standing problem: a waxed office floor hazard that was claiming 4 or 5 slip victims week after week. The result: a way to keep his floors so slip-resistant that in five years since (when 1040 falls might have occurred) *there have been only 3 slip accidents.*

If you've searched for an answer to slippery floor accidents, perhaps this booklet can help you, too. In plain talk it explains the whys and wherefores behind the care of floors. It tells how to avoid slippery floors, and how the Legge System of Safety Floor Maintenance can help you. And it shows you how to eliminate waste motion in floor upkeep to save precious dollars.

How much is it worth to *you* to read this book? There's only one way to find out. Send for a free, no-obligation copy today. Just clip the coupon to your letterhead and mail.

Walter G. Legge Co. Inc.
101 Park Ave., New York 17, N.Y.

Please send me a free, no-obligation copy of your Mr. Higby book.

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Title _____

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LEGGE SYSTEM
of Safety Floor
Maintenance

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re-elected chairman of the Board of Sponsors and Bryan E. Smith is the new chairman of the Executive Committee.

The Human Factors

In an effort to get at the "causes behind the causes" of accident occurrence, the Rochester (N. Y.) Safety Council recently conducted an interesting conference, featuring a practical discussion to find the answer to "Why some people have accidents while others don't." More than 800 interested persons, representing teachers, youth leaders, nurses, public officials, social workers, recreational leaders, hospital staffs, parents, physicians, hygienists and safety leaders, attended the meeting on April 5. This representative group was very much interested in the analyses of the various mental and physical factors that can play a part in causing accidents. Three prominent medical men led the discussions.

Six Chapters on Network

Six Chapters of the National Safety Council are cooperating with the National Broadcasting Company in a nation-wide musical network series, entitled "Green Cross Song Festival" on six successive Saturdays from April 15 through May 20, from 5 to 5:15 p.m., EST.

The general theme of the program is the teen-age driver problem. The musical tie-up was suggested by the brilliant success of the *a cappella* choir of the New Trier High School in Chicago at the last Congress banquet.

A leading local high school *a cappella* choir is supplying the music for the particular program originating in each city. The mayor and the president of the local Chapter are being asked to participate in the speaking part of the program.

If the network reception is as successful as anticipated, NBC will probably select 13 additional cities for a similar series starting next fall.

The following councils are participating in the present series: Greater Chicago Safety Council. April 15; Greater New York Safety Council, April 22; Greater

Los Angeles Chapter, April 29; Greater Atlanta Safety Council, May 6; Greater Cleveland Safety Council, May 13; Louisville Safety Council, May 20.

The President's Medal

Awards made by the National Safety Council for resuscitation by the Prone Pressure Method

JAMES LONG, lineman, Wisconsin Power & Light Co., Clintonville, Wis.—electric shock.

MRS. JOSEPHINE ARROWSMITH, housewife, Glen Falls, N. B.—drowning. Certificate of assistance to Mrs. Christina Anderson, same address.

REO ARLAND GASPER, line foreman, Fall River Rural Electric Cooperative, Inc., Ashton, Idaho—electric shock.

HENRY S. KULIKOWSKI, splicer, Pacific Telephone & Telegraph Co., Reno, Nev.—drowning.

FREDERICK J. LOMPHREY, splicer's helper, Pacific Tel. & Tel. Co., Sparks, Nev.—drowning.

RUDOLPH NELSON, farmer, Troy, Idaho—electric shock.

WINSTON WILSON, student, Munfordville, Ky.—drowning.

W. H. WHALING, zone manager, The Texas Co., Coopers-town, N. Y.—electric shock.

JOHN E. ANDERS, mechanic, Warren Petroleum Co., McLean, Texas—asphyxiation.

CLYDE S. COPELAND, groundman, Intercounty Electric Coop. Ass'n, St. James, Mo.—electric shock.

FRANCIS J. HERRIGAN, line foreman, Central Maine Power Co., Gorham, Me.—electric shock.

DONALD E. DENISON, roustabout, Honolulu Oil Corp., Taft, Calif.—asphyxiation.

RICHARD S. SAMPSON, apprentice lineman, Washington Water Power Co., Pullman, Wash.—electric shock.

J. J. HAVENS, head roustabout, Shell Oil Co., Odessa, Tex.—electric shock.

EDWARD B. PAUL, fire crew foreman, U. S. Forest Service, Westwood, Calif.—drowning.

NO TIME LOST "WONDERING" HOW TO USE THIS EXTINGUISHER!



The first 10 to 30 seconds can mean the difference between *no loss* and *complete destruction* when fire starts. That's why Randolph's simple, *obvious* operation is so important in stopping fires *before* they spread!

Anybody can get a Randolph into action **FAST!** No valves to turn, no nozzles to adjust; just point and press your thumb! Randolph's snowy CO₂ is non-damaging, evaporates without a trace. It's non-toxic, won't conduct electricity, deteriorate or freeze.

UNDERWRITERS' APPROVED

Learn how Randolph gives your plant better *preventive* fire protection! Write Randolph Laboratories, Inc., 2 East Kinzie St., Chicago, 11, Illinois.

Randolph
FIRE PROTECTION EQUIPMENT

The Safety Library

Books, Pamphlets and Periodicals of Interest to Safety Men

Industrial Toxicology

Industrial Toxicology by Lawrence T. Fairhall. Published by the Williams and Wilkins Co., Baltimore, 1949. XI plus 483 pages \$6.00.

This little text has been written for the avowed purpose of providing information on industrial toxicology for the industrial hygienist. It consists of a series of short articles on the properties, industrial uses, toxicity, and analysis of 71 organic materials and 134 compounds of carbon. The articles are very similar to the ones which Fairhall and his associates have been running in the *Industrial Hygiene Digest* of the U. S. Public Health Service for the last several years.

They have been assembled alphabetically in this volume with no attempt at any other organization and no attempt to indicate any possible theoretical or logical connection between the individual subjects.

The choice of materials to treat has apparently been largely dictated by industrial importance and one can scarcely quarrel with the omissions since something obviously had to be omitted. The materials considered are discussed very adequately in a small space.

There is a short introduction explaining the peculiarities of industrial toxicology and an adequate index.

F. A. Van Atta

Model Safety Code

Model Code of Safety Regulations for Industrial Establishments for the Guidance of Governments and Industry. Published by International Labour Office—Geneva. 1949. 483 p. Available from The Washington Branch, I.L.O., 1825 Jefferson Place N.W. Washington 6, D. C. Price \$4.00.

This Model Code has been evolved from drafts prepared by international experts over a period

of six years. It was approved by a Tripartite Technical Conference held in Geneva, Switzerland, in 1948. John M. Roche, manager of the Industrial Department of the National Safety Council, was a member of that conference, representing the United States at the invitation of President Truman.

The Code is now available to all governments to be used as a guide. The governing body of the International Labor Office points out that this Model Code is not an instrument involving any binding obligations and that governments and industries are free to make such use of it as they see fit in framing or revising their own safety regulations.

It is impossible to review each section of this code in detail. However, for the most part, it follows closely codes which are in existence in this country. There are discrepancies when compared to some American codes, but it would be impossible to set up standards which would conform to the requirements of all countries.

As a guide in setting up such a code within a country, it is excellent and comprehensive. The code is divided into sixteen chapters covering the following subjects:

- Chapter I—General Provisions
- " II—Premises of Industrial Establishments
- " III—Fire Prevention and Protection
- " IV—Machine Guarding
- " V—Electrical Equipment
- " VI—Hand Tools and Portable Power-Driven Tools
- " VII—Boilers and Pressure Vessels
- " VIII—Furnaces, Kilns and Ovens

- " IX—Handling and Transportation of Materials
- " X—Dangerous and Obnoxious Substances
- " XI—Dangerous Radiations
- " XII—Maintenance and Repairs
- " XIII—Health Protection
- " XIV—Personal Protective Equipment
- " XV—Selection of Workers, Medical Services, Medical Aid
- " XVI—Safety Organization

Four appendices follow the code, covering "Minimum Spindle Diameters and Recommended Speeds for Abrasive Wheels," "Protection of Presses," "Maximum Allowable Concentrations of Harmful Substances," and "Dangerous Radiations."

An appendix is in preparation to be distributed later consisting of photographs, drawings and explanations of safety installations, appliances and devices. This appendix, when available, will be brought up to date periodically.

A. S. Kelly

BOOKS AND PAMPHLETS

Chemical Industry

Conference on Chemical Works Safety. 29th-31st October, 1948. Proceedings. Published by Association of British Chemical Manufacturers, 166 Piccadilly, London, W1. England, 1950. 132 p. Price 5/- (70¢)

Chemicals

Limits of Flammability and Ignition Temperatures of Phthalic Anhydride. Published by U. S. Bureau of Mines, 1950. 7 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa. Free (Report of Investigations 4671)

Fire Protection

The Lower Limit of Flammability and the Autogenous Ignition

An ounce of prevention

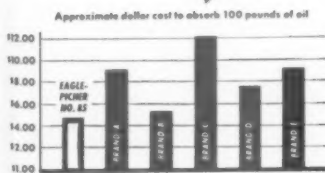
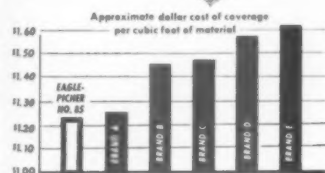
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Temperature of Certain Common Solvents Vapors Encountered in Ovens. Published by Underwriters' Laboratories, 207 E. Ohio St., Chicago, Ill. 1950. 62 p. Free.

Gases

Hydrogen Sulfide. Published by Manufacturing Chemists' Association, 246 Woodward Bldg., Washington 5, D. C., 1950. 12 p. Price 20¢ (Chemical Safety Data Sheet SD-36).

Mines

Safety Practices in Churn Drilling at Morenci Branch, Phelps Dodge Corp., Morenci, Ariz. Published by U. S. Bureau of Mines, 1950. 22 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa. Free (Information Circular 7548).

Shuttle Car Conversion from Storage-Battery to Diesel-Electric Power, Acme Mine, Certain-Teed Products Corp., Acme, Hardeman County, Texas. Published by U. S. Bureau of Mines, 1950. 16 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa. Free. (Report of Investigation 4643).

A Study of Stray Currents in Pennsylvania Anthracite Mines. Published by U. S. Bureau of Mines, 1950. 8 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa. Free (Report of Investigation 4637).

26th Annual Report on Safety in Mines Research. Published by British Ministry of Fuel and Power, 1949. 96 p. Available from British Information Service, 30 Rockefeller Plaza, New York 30. 50¢.

Welding

Welding Handbook. Published by American Welding Society, 33 West 39th St., New York 18. 3rd edition 1950. 1651 p. Price \$12.00.

Workmen's Compensation

Workmen's Compensation Problems 1949. Proceedings of the Thirty-fifth Annual Convention of the International Association of Industrial Accident Boards and Commissions. Published by U. S. Bureau of Labor Standards 1950. 187 p. For sale by the Superin-

non-slip

That word tells the complete story of how to reduce accidents. All four soles shown below give the wearer excellent protection from slipping. It is to your advantage to see that shoes with these soles are available for the men in your plant. Reports prove that accidents caused by slipping decrease rapidly wherever these soles are used.

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Cork and Neoprene. An outstanding safety sole in either brown or black. Resists oil, gasoline, grease, acids, caustics. All weather protection. Cushions the foot against hard, bumpy surfaces. Long wearing.



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Cord and Neoprene. This sole is resistant to oil, grease, gasoline, acids, caustics, and heat. For more than 10 years Neo-Cord soles have provided non-slip footing. Limitations are complimentary but not as SAFE.



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A light weight but tough cork sole. Comfortable to stand or walk on. Won't pick up metal chips. Protects the feet from heat and cold. Non-marking ... long wearing.

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The sole with the original cord-on-end construction. This sole is water-proof and will take the toughest going for a longer time. Gro-Cord, cord-on-end soles will outwear at least two leather soles, and keep their non-slip qualities to the very last.



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When trucks lurch and bump over grime-incrusted floors, costly accidents are bound to happen! But with the powerful, heavy-duty TENNANT FLOOR MACHINE one man alone can smoothly remove all soilage in minutes. Keeps floors clean, smooth, safe and ready for traffic.

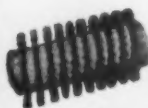
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The way to finer floors
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16" REVO-TOOL



16" WIRE BRUSH

FOR HEAVY SOILAGE Tennant 16" REVO-Tool accessory has 336 steel cutters. Revolves at 1760 RPM to cut grime loose with smooth hammer-mill action. Gets results never possible before.

FOR AVERAGE SOILAGE Tennant 16" Steel Wire Brush attachment smoothly, quickly removes ordinary soilage from factory floors. Picks up dirt at same time. Comes in 3 standard gauges.

Check These Machine Features

- **REDUCES HAZARDS** by keeping floors clean, smooth and dry.
- **ELIMINATES CHEMICALS** or need for soap or water.
- **CLEANS IN 1 OPERATION** by cutting grime loose, smoothing surface and picking up soilage.
- **IS SELF PROPELLING** to provide rapid, easy, one-man operation.
- **CUTS CLEANING COSTS** and requires far less labor.
- **DOESN'T INTERFERE** with plant operation; can be operated at any time.

tendent of Documents, Washington 25, D. C. Price 40¢ (Bulletin No. 119).

MAGAZINE ARTICLES

Accident Records

New Rulings for Industry's Accident Records. (In Standardization, March 1950, p62).

Color

Color Engineering in Plant Maintenance. By Fred J. Kullenberg (In Pacific Factory, March 1950, p30).

Commercial Drivers

Accident Prevention in the Trucking Industry. By O. D. Shipby (In Traffic Engineering, March 1950, p237).

Automotive Driver Testing and Education Reduces Accidents. By Clayton M. Allen. (In Electric Light and Power, March 1950, p68).

Fire Protection

Flame Retarding of Textiles. (In Industrial and Engineering Chemistry, March 1950, p414).

An Introduction to Modern Fire Control. By George F. Prussing (In The Oil and Gas Journal, March 2, 1950, p59).

Handling Materials

Accidents Cost Money. By Leroy Faulkner (In Modern Materials Handling, March 1950, p13).

Lighting

Fluorescent Lighting for a Spray Booth. (In Illuminating Engineering, March 1950, p164).

Maintenance

Who Says Maintenance Incentives Won't Work? (In Factory Management, March 1950, p4).

Mines

Anthracite Trains for Safety. (In Coal Age, March 1950, p71).

Testing Roof the Safe Way. By Tom Gettings. (In Coal Age, March, 1950, p100).

Logging

Safety Wins In White River's Dual Program. By Lester Kramer. (In British Columbia Lumbermen, Feb. 1950, p49).

Paper Industry

Loading Pulpwood Out of Water with Crane and Basket. By R. D. Collier. (In Pulp and Paper Magazine of Canada, Feb. 1950, p65).

Public Utilities

H-Frame Structure Safely Repaired While Hot. (In Electric Light and Power, March 1950, p100).

MAKE SAFETY

a big attraction in '51

Here's the **COMPLETE PLAN**
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Program Popular In the Plant
and in the Home



**TAKE A
LOOK INSIDE**

THIS PROVED PLAN FEATURES THE 1951 PRIZE CONTESTS... Gives You Everything!



**FULL COLOR
12-SHEET
CALENDARS**

1 Every employee will appreciate receiving this appealing new National Safety Council **SAFETY CALENDAR** for 1951, imprinted with your company name. Each of the twelve monthly sheets presents a different human-interest painting in rich colors, tied up with a strong safety theme. The subjects are so fascinating and attractive that the Calendar will be most acceptable in any home. On the back of each monthly sheet, practical safety suggestions are offered for guidance in the home, at work, or play. You couldn't ask for a better way to popularize the safety idea in your employee families throughout the year.

**NEW PRIZE
CONTESTS
EVERY MONTH**



2 Everybody loves a contest and a chance to win a prize. Radio has proved it. Television has proved it. And the hundreds of thousands of entries sent in to the Council by employees and their families on previous Safety Calendar Contests show clearly the tremendous appeal of this activity. For 1951, the monthly contests are built around the writing of a last line to a humorously illustrated Safety Limerick. It's easy! It's fun! And it offers cash prizes paid by the National Safety Council of \$100, \$50, \$25 and thirty \$5 prizes every month. The simple rules of these contests are shown on the back of each monthly Calendar sheet. There are 11 contests in all with total cash prizes of \$3575.00.

In addition, many companies find it pays to conduct their own contests in the plant, awarding cash prizes available to all employees. This has proved effective in whipping up interest in safety throughout the plant and ties in beautifully with other safety promotions.



SAFETY CALENDAR AND NEW MONTHLY

You Need to Put Action into Your Safety Program

COMPLETE PROMOTION KIT



3 To make it easy for you to participate in this proved Safety Calendar Promotion, the National Safety Council has prepared a complete Planning Kit that gives you, in one big package, everything you need to put the plan into operation for the entire year. This kit is sent free of charge when you order 200 or more Calendars, or on smaller quantity orders, when the order provides a Calendar for each of your employees.

This promotion package includes:

- A complete instruction booklet showing (1) how to get the most benefit out of the National Safety Council's monthly contests, and (2) how to conduct your own contests in your plant.
- 12 different Contest Posters promoting the monthly contests.
- 12 different Contest Streamers.
- Reproduction proofs and mats of monthly Limerick Contest Cartoons.
- 12 Contest bulletins for your bulletin board.
- Sample entry blank forms for each monthly contest.
- "Spot" announcements for your public address system or house organ.
- Copy for letters and announcements from management on each monthly contest theme.

With all this material to help you, this Safety Calendar Plan is bound to do a job for you in "selling" safety to your employees and their families every day in the year.

This Low-cost Plan Gives You These Benefits

- Puts new life and action into your employee safety program.
- Promotes employee cooperation.
- Builds plant morale.
- Wins good will of employees and their families.



Plus . . .
**SPECIAL DISCOUNT
FOR EARLY ORDERS**
See Next Page



Early orders will help us to make the first printing of the SAFETY CALENDAR for 1951 more economical. Accordingly, we will pass on a saving to you in the form of a 5% DISCOUNT if you will send in your reservation now on the form below on the basis of the following price schedule.

PRICE SCHEDULE		MEMBER		NON-MEMBER	
Quantity	F.O.B. CHICAGO	Packed Flat in Bulk	In Mailing Tubes	Packed Flat in Bulk	In Mailing Tubes
1 to 9	50¢ each	55¢ each	60¢ each	65¢ each
10 to 199	48¢ each	51¢ each	55¢ each	58¢ each
200 to 999	40¢ each	43¢ each	45¢ each	48¢ each
1,000 to 9,999	36¢ each	39¢ each	39¢ each	42¢ each
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5% DISCOUNT will be allowed on all orders postmarked not later than May 31, 1950, provided that payment is made on or before December 1, 1950. Delivery will be made in November unless otherwise specified.

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Chicago, Illinois

We want to take advantage of the 5% DISCOUNT on our requirements for the SAFETY CALENDAR for 1951. Please reserve Calendars in our name and send us your regular order form so we can give you imprinting and shipping instructions.

We understand that we will receive a sample Calendar as soon as available and can then increase or decrease this reservation, or cancel it if the Calendar does not come up to our expectations.

Name Title

Company Name

Address

City, Zone, State

Ampco's all-purpose bung wrench fits 17 different closures. It's the ideal safety tool for opening drums of gasoline and dozens of other inflammable materials.

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...Ampco Safety Tools for every
job where a spark spells disaster

For hazardous locations, a few dollars invested in the right Ampco tool can prevent thousands of dollars worth of property damage — lost time and lost lives!

That's why Factory Mutual Laboratories and other safety authorities approve and recommend Ampco Safety Tools. Select the right tool for every job from the more than 400 individual items that make Ampco the world's most complete line of safety tools. Enjoy lower insurance rates — and plant-wide peace of mind that builds greater job efficiency!

How to choose Safety Tools



For tools subject to impact and/or torque — specify tools of Ampco Metal.



For jobs around acetylene and similar gases — specify Ampco Monel® tools.



For tools with cutting edges and gripping teeth — Ampco beryllium copper.

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West of the Rockies, it's the Ampco Burbank Plant, Burbank, Cal.



NO BETTER Insurance
Fire Prevention with

BERYLCO SAFETY TOOLS

How much is your plant worth? How much would it cost at today's increased costs and how long would it take to rebuild after a disastrous fire or explosion?

You can feel safe with BERYLCO Safety Tools on the job. They are made of high performance beryllium-copper and are highly resistant to sparking. They give you protection on all operations involving the use of inflammable or explosive liquids, gases or dusts. They give you added value in being corrosion-resistant and non-magnetic. And they're strong and tough for lasting service.

Write today for Catalog No. 348 showing the complete line of BERYLCO Safety Tools.



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Safety Films

(From page 54)

of Danger," a one-minute short produced by Wilding Picture Productions for the National Safety Council and representative of other films in a series, were cited.

The National Committee on Films for Safety represents the following national organizations:

American Association for Adult Education, American Association of Motor Vehicle Administrators, American Automobile Association, American National Red Cross, American Public Health Association, American Society of Safety Engineers, Association of Casualty and Surety Companies, Association of Safety Council Executives and the Automotive Safety Foundation.

Other organizations represented on the committee are International Association of Chiefs of Police, National Association of Manufacturers, National Association of Mutual Casualty Companies, National Commission on Safety Education, National Fire Protection Association, National Retail Farm Equipment Association, National Safety Council, United States Junior Chamber of Commerce, U. S. Navy Department, U. S. Public Roads Administration and U. S. War Department.

Dr. J. Sterling Livingston, graduate school of business administration, Harvard University, was chairman of the committee.

Dermatoses

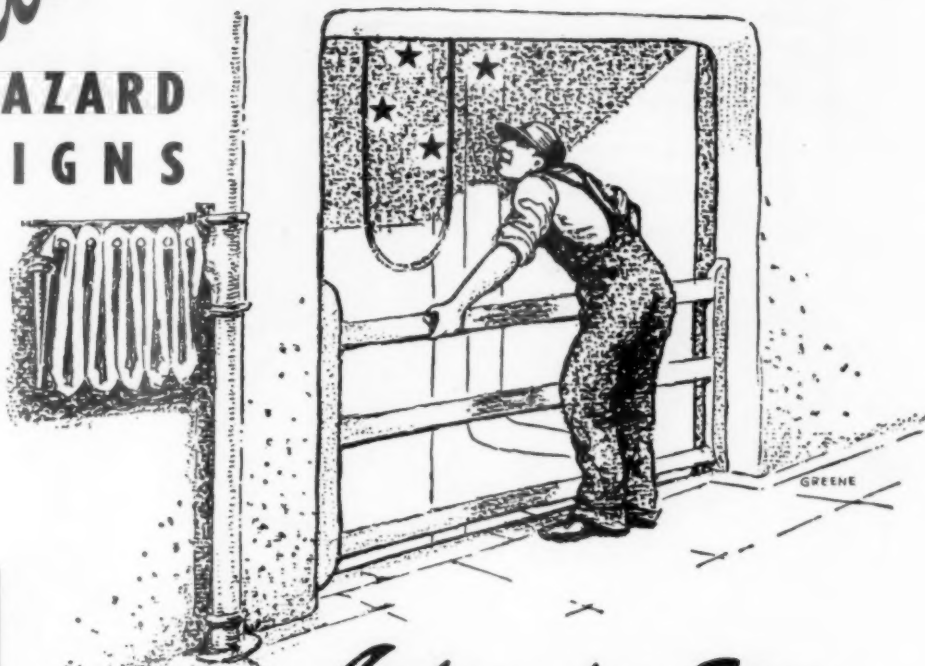
(From page 39)

these eruptions—that is, many of them—are on the covered parts. Following this, attention should be paid to the objective symptoms that are present. This means an examination of the cutaneous surface with all of the clothes removed.

Often there are changes present on the covered parts which give a clue to the correct diagnosis. Sometimes there is more than one disease present. It is also important to know when the patient stopped work. The next important part of the history is the question

Elevator

HAZARD SIGNS



DANGER
DO NOT GET ON
OR OFF ELEVATOR
WHILE IT IS MOVING

CAUTION
BE SURE ELEVATOR
IS LOCKED
WHEN LOADING
AND UNLOADING

DANGER
LOOK OUT FOR
ELEVATOR

ELEVATOR

NOTICE
ELEVATOR
OUT
OF ORDER

NOTICE
THIS ELEVATOR
IS FOR
FREIGHT ONLY
NOT FOR PASSENGERS

CAUTION
GATE MUST BE DOWN
WHEN
ELEVATOR IS UP

DANGER
DO NOT LEAN ON
OR LOOK OVER
THIS GATE

CAUTION
RING BELL
BEFORE
LOWERING ELEVATOR

DANGER
DO NOT RAISE
ELEVATOR DOOR
RING BELL AND WAIT

Many more Elevator Hazard Signs
are shown in our Catalog No. 8.
It's free on request.

"Stonehouse Signs Since 1863"

Looking for Stars

...UP AN ELEVATOR SHAFT?

A LOT of men have seen them ... followed by
a long dark period in a hospital bed

... for elevators have an uncanny habit of
coming down just as a fellow sticks his head up
to see what has become of the car.

It's better to look straight ahead than up at
the doctor.

STONEHOUSE SIGNS

For Accident Prevention

help teach men to save their heads by USING
them outside the shaft.

Stonehouse
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ACCIDENT PREVENTION SIGNS IN STANDARD COLORS AND DESIGNS

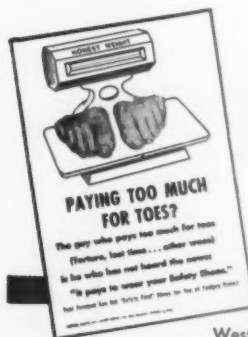


Paying Too Much for Toes?

Biggest curse of a toe accident is not its cost to you . . . nor its torture to your employee. The curse is that *the accident need not have happened*. In the many plants where employees are encouraged to wear "Safety First" shoes, costly toe accidents don't happen! And when man-hours are saved—profits are made!

"Safety First" steel toe shoes can cut costs in your plant, too. Why not request our safety engineer to share with you the benefits of our half century of experience.

Free Posters to help you cut cost of foot accidents! ALSO catalog of Safety First Shoes for your industry. Write today!



Safety First

SHOE COMPANY
HOLLISTON 3, MASSACHUSETTS

PIONEER MANUFACTURERS OF SAFETY SHOES

West Coast Branch: Pacific Bldg., 16th St., Oakland, Calif.

of work: How long has the employee been on the present job? What are the details of his work? What substances are handled? Have there been any changes in the substances handled? This is important at the present time because there are changes being made daily.

What were the cleansing processes at the factory and at home? I think this is important because attention is being paid to over-cleanliness by the women workers. How many other individuals are affected? How many are doing the same work? Is there any work outside of the regular employment? At the present time some employees are doing two jobs. Does the employee have any hobbies such as photography, gardening, etc.?

Assuming that the employee has an occupational dermatosis, then, it is important that his exposure to occupational irritants is positive. If there is not exposure to occupational irritants, then there cannot be an occupational dermatitis.

Regardless of whether the dermatosis is of occupational origin, the employee and the employer both want to know if the disease is contagious or disabling.

Assuming that the employee has an occupational disease of the skin then the following medical criteria should be fulfilled:

1. Was there a reasonable incubation period for the dermatosis? The incubation period, of course, varies depending upon what substance was handled in the work. A physician examining and treating an occupational dermatosis must be familiar with this incubation period and often he has learned this through past experience.

2. It is a fact that after cessation of work over a period of two or three weeks that an occupational dermatosis improves or disappears.

3. On re-exposure to the former occupational irritants there will be a recurrence and exacerbation of the occupational dermatitis. Supposing that an employee takes a vacation for two weeks then the eruption improves if it is due to the occupation. After the employee returns to work there will be a re-



How do your employees WANT to invest their savings?

People are *more than twice as inclined* to invest their extra money in Savings Bonds as in any other form of savings or investment, according to the 1949 Survey of Consumer Finances*. That's adequate proof that your employees want your company to have the Payroll Savings Plan, by which they get the convenience of obtaining bonds regularly and "automatically"—delivered with their pay checks.

More than 20,000 companies operate Payroll Savings. The managements of these companies know it's "good relations" to provide this convenience. They can see the company-benefits in improved worker efficiency and stability. They know, too, that it's "good business"—because Payroll Savings boosts Bond sales, and Bond sales create a huge backlog of purchasing power that's "business insurance" for the years ahead.

Of course every Bond buyer builds financial independ-

ence because his Bonds at maturity will return \$4 for every \$3 he invests. Holding Bonds, moreover, helps him to realize he's making a profit on his job... makes him more resistant to influences which are unfavorable to our economic system.

It's easy to install Payroll Savings

Don't think that installing Payroll Savings is "a lot of work." All you need to do is appoint one of your top executives as Savings Bonds Officer and tell him to get in touch with your State Director, Savings Bonds Division, U. S. Treasury Department. The State Director will provide application cards, promotional material, and as much personal help as necessary. Remember—Payroll Savings *pays!*

*Sponsored by the Board of Governors of the Federal Reserve System and conducted by the University of Michigan. Based on 3,500 interviews in 66 sampling areas throughout the nation.

The Treasury Department acknowledges with appreciation the publication of this message by

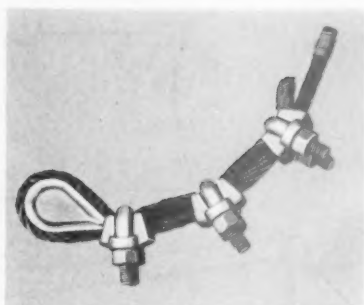
NATIONAL SAFETY COUNCIL



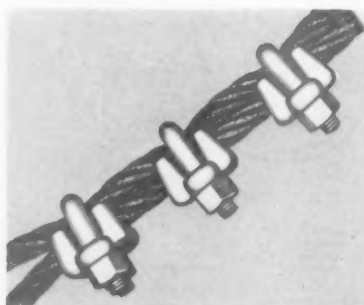
This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and The Advertising Council.

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**"Fist-Grip" Clips superior —
see for yourself!**



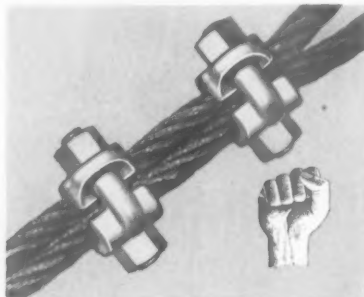
1. U-BOLT CLIPS crush rope into bowed shape when nuts are tightened. Weakened rope endangers safety.



2. CRUSHED ROPE is further damaged by U-bolt clips when rope is under tension. Note crimping.



3. "FIST-Grip" CLIPS save rope, hold wire straight when clipped. There's no damage, no distortion with "Fist-Grip" Safety Clips.



4. STAYS STRAIGHT under tension. Efficient "Fist-Grip" Clips deliver 95% to 100% of rope's rated tensile strength.

Look to Laughlin for these "Fist-Grip" Clip benefits

Won't crimp or crush — pre-formed or regular lay wire rope; leaves them full strength for safety and longer life

Simple, easy to put on — saves time, manpower, can be put on with *any* type wrench

100% foolproof — can't be put on backward

Super grip — two clips do the work of three

Extra strength and safety — only type clip where entire clip, including bolts, is drop-forged

Distributed through mine, mill and oil field supply houses. Write for Laughlin Catalog #145 for complete data on industrial fittings. **THE THOMAS LAUGHLIN COMPANY**, Department 9, Portland 6, Maine.

LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



currence and exacerbation of the occupational dermatitis, provided that the former occupational irritants are handled again.

4. Is the disease in the areas of maximum exposure to occupational irritants? The majority of the eruptions will be on the hands, forearms and face, that is, the exposed parts.

5. Are the lesions and their localization characteristic of the occupational irritant handled by the employee? For instance, if the patient handled cutting oil the lesions will be blackheads, follicular papules and pustules and, occasionally, abscesses and boils. The location will be on the extensor surface of the forearms.

6. Fellow-workers are usually similarly affected. In other words, it is seldom that only one worker has an occupational disease of the skin unless he is the only one handling the irritating substances.

7. Did the disease appear soon after exposure to a new irritant? This point is important at the present time because there are changes made in many substances and materials handled at the present time. I realize that many employees are unaware of the substances that they handle and it is, therefore, difficult to obtain a history. Some employers are unwilling to cooperate in this matter.

8. Is there proof that there has been exposure to an industrial irritant? If there is lack of proof of exposure to industrial irritants then the disease at hand is unlikely to be an occupational dermatosis.

Patch tests should be made and interpreted only by experienced dermatologists. My recent experiences with patch tests have been unfavorable because there have been many changes in the substances and materials handled. Unless one knows the strength of these substances it is not advisable to make patch tests with them.

Stars in His Eyes

(From page 35)

have to calculate your over-all hazards and all your safety resources. You then deploy your resources in the most efficient way to stop the greatest number of seri-

ous accidents. You must refuse to be panicked by the current accident which may be an inevitable part of the price you pay for intelligent concentration.

Then there will be wrangles—nasty, mean, petty wrangles. How well you handle yourself in the face of them will do much to determine your effectiveness. You have to learn when the sorehead should be allowed to rant and when you should cram his words back down his throat, when the placid guy should be made mad, when to kid a fight out of existence, and when to stand up solemnly for right and justice.

Someday, if you survive these problems, you will be a top safety man in a big company. You will add to all your other headaches the chore of presenting to men far from the production line specific proposals and general principles. You will discover that this very real problem of life saving is, in the mahogany offices, precisely the same kind of an abstraction that production is, money is. If your high brass is intelligent and well-informed, it will be steel-hard and brilliantly critical. If it is ill-informed, it will be apathetic and brand safety as an "intangible."

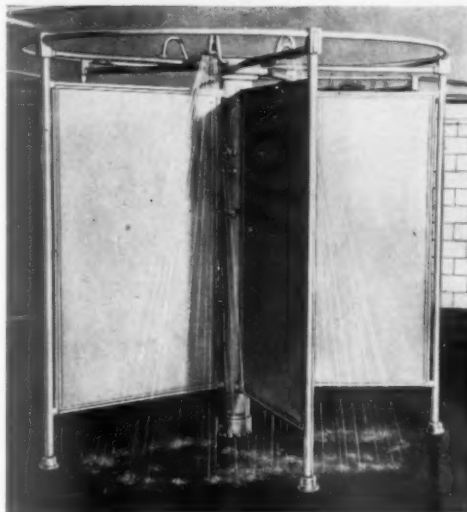
I have seen more good safety measures sidetracked because safety men (including me) made careless, bumbling presentations than because of management ignorance or callousness.

And as you get older and more learned, you face the ever-present frustration that comes with the realization that the world is also becoming wiser, that when you reach an age when you would like to relax and coast on your mental capital, the rules of the game are changing so fast that you are engaged in a desperate rat-race to keep from becoming more ignorant than your juniors.

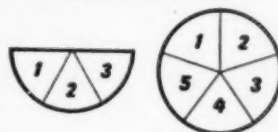
If I were only concerned with keeping you from being jolted uncomfortably by the realities of safety work, I would stop here. I would say to myself, "Now he ought to be cynical enough for his peace of mind."

But I'm not trying to make you a cynic. A cynic is of little value in this profession. I want you to be an idealist, through every com-

ECONOMICAL SHOWER BATHS



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In Plant
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**8 Bradley
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Bradleys Are Multi-Stall Showers That Cut Installation Costs

At the Elmira Foundry 16 Bradley Shower installations were made with a capacity of serving 64 individuals simultaneously. A similar set-up of ordinary single-stall showers would have required 64 separate installations. In addition 64 sets of hot and cold water and drain pipes would be required instead of only 16 sets as with Bradley Multi-Stall Showers.

Furthermore, savings are realized in lower water consump-

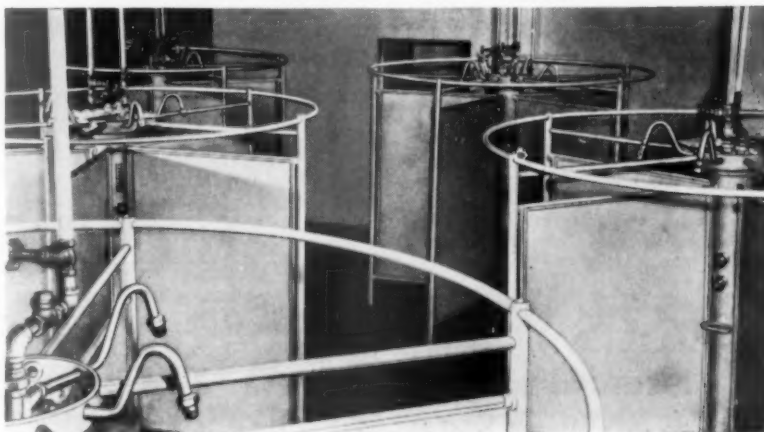
tion and maintenance. Bradleys are available with or without receptors and can be quickly mounted on any type of floor including wood. The economy and convenience of Bradley Multi-Stalls pay off in dollars and employee goodwill. BRADLEY WASHFOUNTAIN CO., 2237 W. Michigan Street, Milwaukee 1, Wisconsin.

Send for interesting, fact-filled Catalog 4701. Write today.

BRADLEY
multi-stall showers

Distributed Through Plumbing Wholesalers

Top view of a group of Bradley Multi-Stall Showers

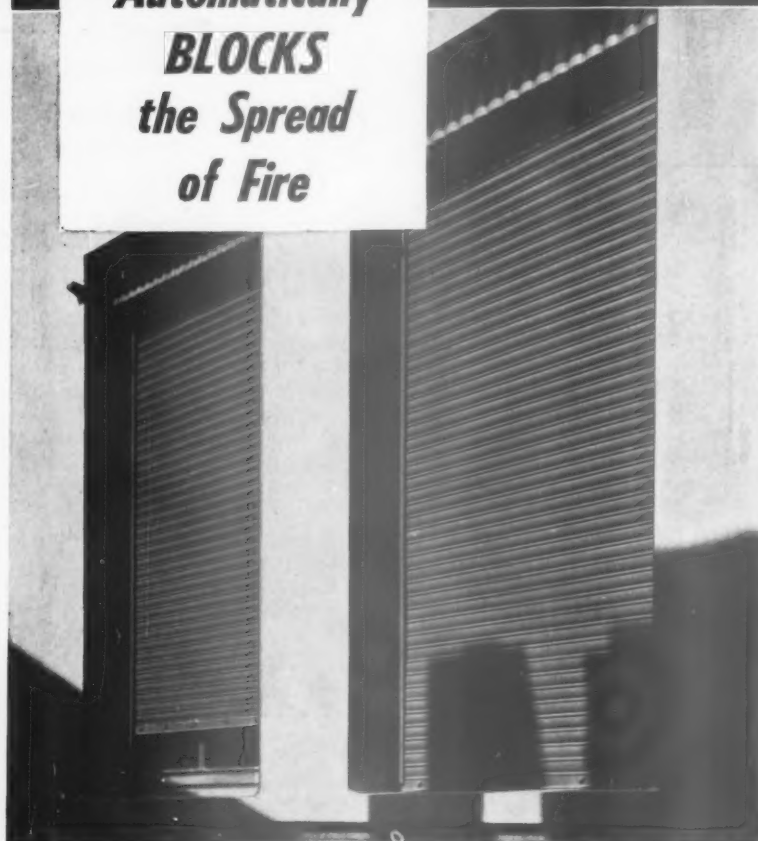


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BLOCKS
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Rolling Fire Door



Safety Features Give Building Occupants EXTRA Protection

You get *positive, automatic, dependable* fire protection at doorways, windows and other horizontal openings with the famous Akbar Fire Doors. They're *pushed* downward by a strong spring . . . *controlled* in downward speed by a special safety device . . . and operable *after* automatic closure, for emergency use. These efficient doors remain coiled out of the way overhead when not in use, but lower into place with speed and efficiency when fire threatens. They combat fire loss by cutting off drafts, blocking the spread of flames, and confining fire to small areas. Approved and labeled by Underwriters'

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Laboratories, they have saved as much as 33% of their cost *annually*, in reduced insurance rates. Built to fit windows, doorways or other openings of any size. Write for complete information.

Kinnear Rolling Fire Doors can also be equipped for daily service use, with or without motor operation. But the regular (non-labeled) Kinnear Rolling Doors are preferred for service use where extra fire protection is not required.

Saving Ways in Doorways

KINNEAR
ROLLING DOORS

promise, through every maneuver, through every failure.

Cynicism is too easy a road. So is a visionary idealism. The only man who can serve well in safety work is the idealist who has a fiercely realistic view of the effects of his actions.

He may go due west to get around an obstacle that blocks his road to the east. But he remembers that east is the way he must go, and he keeps everlastingly seeking a road in that direction, and he finds it. The visionary, on the other hand, breaks his neck charging the obstacle, and the cynic says, "To hell with it," and drifts west.

Safety work, if you can't be a realist on detail and an idealist on generalities, will either break your heart or break your moral fiber.

Sincerely yours

Now that I've written the draft, the unsolved problem remains—would it do Harry more harm than good to get such a letter?

The Reader's Point of View

Comments on topics of current interest are always welcome. They need not agree with the opinions of the editors.

Employee Publications

SACRAMENTO, CALIF.—We have read with a great deal of interest the *Industrial Safety Panel* in the February issue and its discussion of the employee publication.

Comments made by the participants are enlightening but they tell only half a story. Would it be possible for NATIONAL SAFETY NEWS to make available to those readers who are interested a sample copy of each of the publications mentioned in the discussion?

We would be extremely interested in examining the several papers mentioned.

A. I. RIVETT, *Safety Engineer*
Division of Highways,
Department of Public Works,
Sacramento, Calif.

EDITOR'S NOTE: Copies of the publications mentioned in the Panel, unfor-

tunately, are not available at National Safety Council headquarters. It is suggested that those interested write to the companies publishing them.

Qualified Amateurs

ROCHESTER, N. Y.—I have had recently the occasion to review the National Safety Council booklet "Hold Everything."

This is a well done job, and I have no adverse comment on the book itself but there is a matter of usage of the word "amateur."

In many publications issued for general public distribution on the subjects of safety and fire protection, there are statements similar to the one on page 11 of the current booklet: "No amateur wiring."

This use of the word has disturbed me over many years as, for example, I do install my own wiring, also plumbing, and regard myself as an amateur in the sense that I do not work at either of these trades for my regular living or receive any compensation for such work, nor do I hold any license.

On the other hand, the electrical work is installed in full conformity with the National Electrical Code and whatever plumbing or pipe fitting I do is in full conformity with local codes except to that part which specifies "licensed master plumber."

Frankly, I have seen a great deal of work installed by licensed electricians and licensed master plumbers which would not meet my own requirements for safety and workmanship.

For many years I have been an outspoken advocate of the right of any individual to do his own work, providing it fully met requirements for safety and good workmanship, and have attempted wherever possible to see that provisions were inserted in codes to indicate that satisfactory workmanship was the desirable end rather than insistence upon the work being done by some person who happened to hold a license.

All of this comes around to the idea that perhaps we need a new word. Webster's dictionary at the present time is no help, giving two distinct meanings for "amateur," one indicating work outside the regular profession and not for



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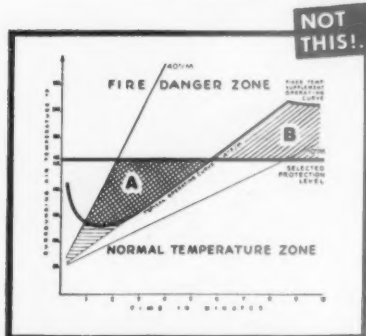
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Address

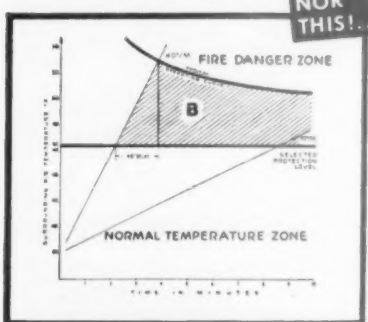
City..... Zone..... State.....

When seconds may mean lives!...

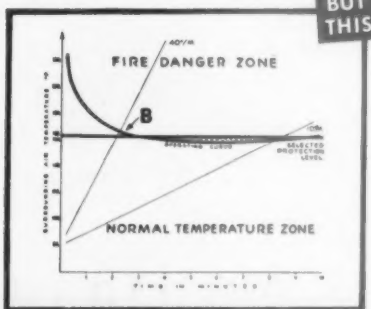
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FIXED-TEMPERATURE DETECTOR permits wide unprotected zone (b), due to thermal lag.



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financial gain, the other a term of disparagement.

There are still many rural areas of the country where it is quite impractical to obtain the services of licensed men, and even if they were obtainable, the costs in many cases would be utterly prohibitive. I believe farmers should be encouraged to make their own installations but given plenty of advice in regard to the necessary requirements.

Thomas Jefferson regarded himself as an amateur architect, yet all agree that Monticello and other work by Jefferson is of exceptional architectural merit. And, of course, the difference between amateur and professional in the field of sports hinges solely on whether or not there is any money involved.

At least, let's take the word "licensed" out of our literature and insert the word "qualified."

ALLEN L. COBB,
Safety Director, Kodak Park Works,
Eastman Kodak Co.

Personals

Republic Steel Appointments

The resignation of J. A. Voss as director of Industrial Relations for Republic Steel Corporation has been announced by W. M. Kelley, vice president in charge of



J. A. Voss

E. J. Magee

operations. Mr. Voss submitted his resignation following an extended period of illness.

Succeeding Mr. Voss as head of the Industrial Relations Department of Republic will be E. J. Magee who had been acting director for the past several months. Mr. Magee is a veteran of 27 years with Republic and its predecessor companies, most of which was spent in industrial relations work.

Appointed to the position of assistant director of industrial relations is R. H. Ferguson who had been manager of safety since 1933. Walter M. Nelson succeeds Mr. Ferguson as head of Republic's safety program.

Starting as assistant safety director for Inland Steel Company in 1909, Mr. Voss became safety director in 1918 and in 1923 was



R. H. Ferguson Walter M. Nelson

made director of safety and compensation of the Central Steel Company, Massillon.

He held the same position when that company merged to form the Central Alloy Steel Corporation, and when Central Alloy became a part of Republic he was placed in charge of the new corporation's important department of industrial relations.

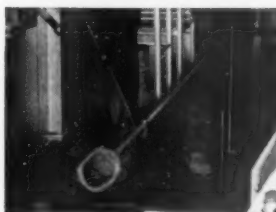
Mr. Magee was born in West Middlesex, Pa., and attended high school in Hubbard, Ohio. He studied mechanical engineering for three years and later entered law school at Youngstown College. He entered the employ of Truscon Steel Company, Youngstown, in 1923 as an engineer and was later appointed assistant director of industrial relations. He held the position of director of industrial relations in 1935 when Truscon Steel Company became a subsidiary of Republic Steel Corporation. A short time later he was transferred to Republic's general offices and in 1945 was appointed Republic's assistant director of industrial relations.

Mr. Ferguson was born at Terre Haute, Ind., and graduated from the University of Illinois and John Marshall Law School in Chicago. Before coming to Republic he held a variety of positions with United States Steel Corporation, Illinois Central Rail-

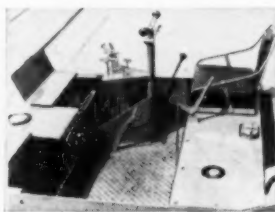


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in your plant and on your products

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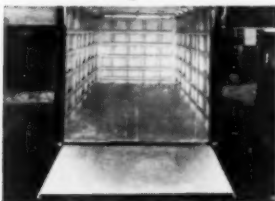
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NEW STAINLESS STEEL EXTINGUISHER

NEW LOW PRICE

Gas cartridge-operated, water type . . . no annual recharging

Costs about the same as soda-acid type. Big savings in maintenance!



● Now you can say good-bye to the nuisance (and expense) of annual recharging. You can stop worrying about the dangers of working with acid. This new PYRENE* 2½ gal. gas cartridge-operated extinguisher frees you from both. Yet it costs about the same as the PYRENE soda-acid type!

The new extinguisher uses plain water as extinguishing agent. Easily directed

in a safe 40-foot stream. To discharge, you turn it upside down and strike it on the floor. A new, meter-type valve releases the gas pressure evenly and gradually, rather than all at once.

Here's your chance to cut down maintenance costs and safeguard your property with modern, efficient fire protection. Replace your old, outmoded models with this new PYRENE beauty. See your PYRENE jobber today!

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road, Middlewest Utilities and the National Safety Council. He has been active in half a dozen societies and associations having to do with industrial hygiene, safety and iron and steel engineering, and recently held the position of president of the American Society of Safety Engineers.

Mr. Nelson is a native of Buffalo. He entered the employ of the Donner Steel Company, one of Republic's predecessor companies, in 1926. Since the merger with Republic, he has held positions in the Industrial Relations Departments of Republic plants in Buffalo, Chicago and Youngstown.

OTTO HOLMSKOG, construction engineering supervisor for Employers Mutual Liability Insurance Company of Wisconsin, and general chairman of the Construction Section, NSC, 1948-49, has been transferred from Milwaukee to the company's home office at Wausau, Wis.

CLAUDE E. MONLUX, vice-president, The Linde Air Products Company, New York, was elected president of the International Acetylene Association at the organization's Annual Convention in San Francisco, March 27 to 29. Mr. Monlux had served as vice-president for 1949.

JAMES W. DUNHAM, vice-president, National Cylinder Gas Company, Chicago, was elected vice-president of the Association. E. V. David, assistant manager of the Technical Sales Division, Air Reduction Sales Company, New York, was re-elected treasurer. H. F. Reinhard was re-elected secretary.

HENRY PALAU, of South Norwalk, Conn., has been appointed to the newly created post of assistant to the director of industrial relations in charge of plant protection and safety for the Stamford Division of the Yale & Towne Manufacturing Company.

Mr. Palau resigned from the Connecticut State Police, in which he held the rank of sergeant for the past 12 years, to accept the position with Yale & Towne. Prior

to his appointment to the state police force in 1922, he was employed by the Lake Torpedo Boat Company of Bridgeport, and the E. E. Dickenson Company, of Essex, Conn. While with the state police, he studied at the Northwestern University Traffic Institute.

A. O. ROUSSEAU

ALPHONSE O. ROUSSEAU, abrasive products safety engineer at Norton Company in Worcester, Mass., died March 27 at the age of 61 after a brief illness. He was a member of Norton Company 43 years. Perhaps he was best known for his talks on grinding wheel safety which he has given throughout the country for many years.

He was one of the pioneers in his field and it was at his urging that Norton Company produced its motion picture, "Grinding Wheel Safety."

Mr. Rousseau was chairman of the safety committee of the Grinding Wheel Institute and was a member of the Institute's Standardization Committee. He was a representative of the Institute on the Mechanical Standards Committee of the American Standards Association. In addition, he was secretary of the technical committee on the ASA Safety Code for the Use, Care and Protection of Abrasive Wheels.

Calendar Contest Winners for March

First prize in the National Safety Council's Safety Calendar Contest goes this month to H. G. Pond, Dept. of Natural Resources & Ind. Development, Prov. of Sask., Hudson Bay, Sask., Canada. The theme in this contest was home safety. Mr. Pond's two-line rhyme was adjudged best of all those submitted. It was:

*Loaded to the eyebrows, heeled to the hilt,
Nothing to hold her—so she got spilt*

Second prize went to Mrs. Sue Sanders, Bessemer, Ala., for this rhyme:
For safety on stairways remember the code:

One hand for the railing and one for the load.

Third prize was awarded to Neal C. Sentell, Industrial Relations, U. S. Rubber Co., Detroit, Mich., for the following rhyme:

*This is a tragic picture which no one can deny,
She should have used the hand rail*

HERC-ALLOY FEATURES

- America's first alloy steel sling chain... first to bear a serial number.
- Every CM HERC-ALLOY Sling Chain is alloy steel throughout...links, rings, hooks. There is only one grade...the best.
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New SIGHT SAVER tissue dispenser contributes to

Safety Sight Saver tissues clean and polish eyeglasses quickly, easily and thoroughly . . . wipe away the best excuse men give for not wearing safety glasses. It doesn't make sense to ask a man to work with dull tools — or with dirty safety glasses.

Efficiency Employees, especially skilled craftsmen, work more safely, more rapidly, more accurately and with less eye strain if their glasses are Sight Saver clean.

A Safety Feature That Pays for Itself . . . many times over — by reducing the time required to keep glasses clean — by making safety glasses more comfortable to wear — by increasing accuracy and decreasing eye fatigue.

Easy to Install . . . Easy to Service



All-metal Sight Saver dispenser can be installed in a few minutes . . . serviced by simply inserting refill packet about once a month. Fool-proof, permanently lubricated mechanism dispenses one 3" x 7" tissue at a time.



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—and heels not quite so high.

Thirty \$5 awards were issued to:
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Fred Rasdorf, Pullman-Standard Car Mfg. Co., Chicago.

Mrs. B. Dobbins, secretary, Patent Dept., Pullman-Standard Car Mfg. Co., Chicago.

Mrs. D. C. Padar, Chicago.

Rosanne Shumway, Minneapolis, Minn.

James T. Rundle, inspector, 12"-10" Mill, The Steel Co. of Canada, Ltd., Mt. Hamilton, Ont.

Mrs. V. G. Feldbauer, St. Mary's, Pa. Thelma Tuck, Hartford, Conn.

Edward P. Noll, Nordberg Mfg. Co., Milwaukee, Wis.

Marion M. Gardner, Sharples Chemicals, Inc., Wyandotte, Mich.

Steve Benedict, Berkeley, Calif.

Mrs. Flora Murray, registered nurse, San Antonio, Tex.

Mrs. Lenore Brown, Ogden, Utah.

Mrs. Gwen P. Davis, assistant buyer, Missoula Mercantile Co., Missoula, Mont.

Mrs. C. H. Mulcahy, Boulder, Mont. Mrs. Winnifred Senning, Tucson, Ariz.

Mrs. Clair L. Dickinson, Sioux City, Iowa.

Henry Abeln, Missouri Portland Cement Co., St. Louis, Mo.

Mrs. Guy Young, Dexter City, Ohio.

Clara M. Striplin, Berrien Springs, Mich.

John A. Fischer, meter reader, Northern States Power, St. Paul, Minn.

Stanley Delimat, Rheem Mfg. Co., Bayonne, N. J.

Charles F. Straight, stockchaser, Hamilton Standard Propellers, East Hartford, Conn.

Mrs. Ruth Garman, Harrisburg, Pa.

Mrs. Ida Sampieri, Woodbury, N. J. Charles Waranow, West Somerville, Mass.

Mrs. Don Adair, Lansdowne, Pa.

Mrs. Hilma D. Barrett, East Orange, N. J.

Miss Virginia M. Davis, stenographer, New England Power Service Co., Boston, Mass.

Philip Hehn, cooler room, C. Schmidt & Sons, Inc., Philadelphia, Pa.

A new contest is offered each month through the safety calendar.

Preparedness

The city desk of the *News* got a call one morning from an amateur photographer who said he had a picture of a traffic accident he'd like to sell. "Woman lying in the street, all banged, and people crowding around," he said.

The newspaperman asked him how he happened to get the shot.

"Oh, I always carry a camera with me in the cab," he said, "and when I hit this dame . . ."—*New Yorker*.

Benzene (Benzol)

(From page 37)

has been shown by the benzene-detecting instrument to be free from vapor. Even after steaming out, there may be a residue of benzene in sludge, under scale, or in crevices which will make the air in the tank toxic again when it is stirred up.

29. It is extremely important that the tank be properly cleaned and steamed before anyone enters it. The steps which should be taken are these:

- a. See that there are no open flames, sparks, or other sources of ignition in the vicinity.
- b. Use non-sparking tools.
- c. Disconnect and blank off all pipelines.
- d. Disconnect agitators.
- e. Connect a steam line to the tank, and steam until the temperature is above the boiling point of benzene throughout the tank.
- f. Connect a water line to the tank and flush with cold water at high pressure.
- g. Ventilate the tank and test for vapors before entering.

30. When the tank is entered, the air supply equipment and life line of the men going into it should be attended by a man outside who has no other duties.

31. Waste benzene should not be discharged into sewers nor boiled off and released into the open air. It should either be distilled and recovered or burned in the open with precautions against uncontrolled fire or explosions.

32. Discharge into sewers may result in the accumulation of toxic or explosive quantities of benzene vapor in the sewer itself or in tunnels, work rooms, or other closed places drained by it. Discharge into the open air in the presence of adverse winds may lead to explosive or toxic conditions in adjacent buildings.

33. The same hazards will be encountered if benzene stills are operated beyond the capacity of their condensers. Vents on such stills, as well as on all storage tanks and other containers, should be equipped with flash arresters and should extend high enough

Willie's about to BREAK A RECORD



Unfortunately, it's the plant's safety record. And Willie will be mighty lucky if that's all he breaks.

Slipping accidents can be prevented — simply and economically — with **Wyandotte Zorball**®. This all-purpose floor absorbent absorbs oil, grease, water, paint and other liquids — provides soiled floors with an immediate anti-skid surface.

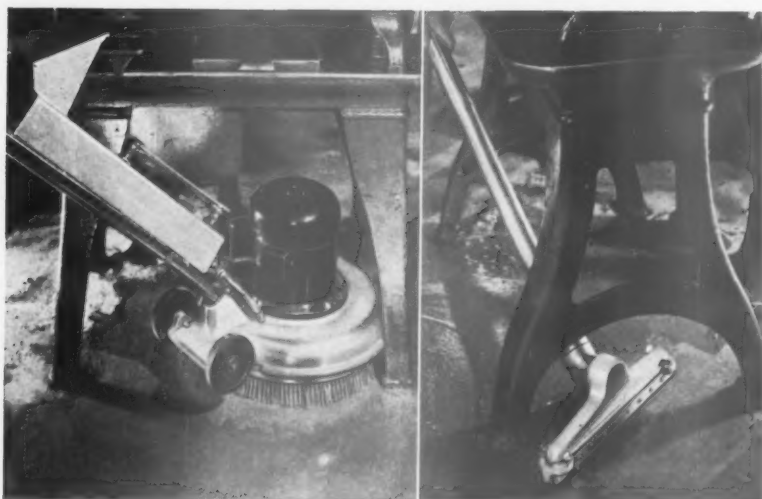
Zorball is nonflammable and, even when saturated with oil, it resists burning. It's harmless to fabrics, wood, metals and rubber and will not irritate the skin of those who handle it. Because Zorball won't cake, pack or form "mud," it will not readily cling to workers' shoes. This helps assure a cleaner, safer plant or shop.

For safety's sake, get acquainted with Wyandotte Zorball today. For information, just call your nearest Wyandotte Representative.

*Wyandotte Zorball is listed by Underwriters' Laboratories, Inc.

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Clean out the DANGER SPOTS with HILD System Shower-Feed Scrubbing and Vacuum Drying



WRITE FOR
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HILD Equipment goes right up to and under machines where grease drippings and cutting oil condensation make the floor dangerously slippery. Shower-feed scrubbing with the powerful HILD Floor Machine quickly loosens and dissolves the slippery, greasy dirt. HILD System Vacuum Drying picks up the dirt and scrubbing solution instantly and completely. Floors are left clean, dry and slip-safe . . . without rinsing or mopping. So speedy is the HILD System that floors can be scrubbed during working hours without interrupting machine operation for more than 90 seconds. Get complete information!

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740 W. Washington St., Dept. NS-5, Chicago 6, Ill.

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WAXES • POLISHES • BUFFS
SANDS • GRINDS • STEEL-WOOLS
FLOORS OF ALL KINDS**

Use the same HILD Floor Machine with a series of easily interchangeable attachments to put office floors in tip-top condition . . . and keep them sparkling clean and bright.

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Clear Vision

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above the nearest building that vapor cannot find its way to an inhabited place.

CHRONIC POISONING

34. *Causes and characteristics.* Chronic benzene poisoning occurs as the result of repeated or long continued exposure to amounts of vapor smaller than those which produce acute poisoning. Many safety codes set maximum safe limits of benzene vapor as between 50 and 100 ppm. However, some very sensitive individuals can probably be harmed by smaller quantities of vapor after a long exposure.

35. Chronic benzene poisoning affects the blood and blood-forming organs, producing serious degeneration in the bone marrow. When slightly damaged by poison, the marrow can still regenerate after removal from the toxic agent. When the damage is severe, no known treatment will restore the marrow to normal or make it able to perform its vital functions of furnishing red blood cells, white blood cells, and blood platelets.

36. There is no way to determine the sensitivity of an individual beforehand. Cases of fatal poisoning have been recorded from very light exposures to benzene. Some individuals, on the other hand, are apparently well after prolonged and heavy exposure.

37. Some of this variation may be due to the very considerable difficulty in determining benzene concentrations in the air as well as to individual differences in susceptibility. In any case, safe practice dictates that any employee who shows signs of benzene poisoning should be transferred to work in which he will have no exposure.

38. Chronic benzene poisoning may be detected early by signs of absorption or late by symptoms of poisoning. Early benzene poisoning is indicated by changes in the composition of the blood, as determined by blood counts.

39. Such a blood examination should include a red cell count, a white cell count, a differential count, a measurement of hemo-

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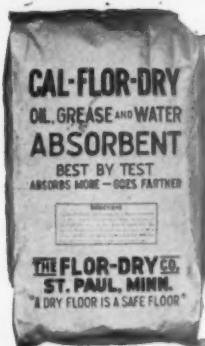


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globin (preferably by the Sahli or other accurate method; the Tallquist method is not accurate enough for this purpose), a hematocrit measurement, and a determination of mean corpuscular volume.

40. Medical authorities differ as to what change in the blood count is first found in chronic benzene poisoning. Possibly the change which occurs first varies from one individual to another. Some authorities believe that changes in the size and number of the red cells appear first, followed by a decrease in the number of white cells and a shift in the percentage of granulocytes, and still later by a depression of red and white cells and platelets.

41. In general, signs which should arouse suspicion of early chronic benzene poisoning in exposed individuals are the following:

- Depression of a previously normal red cell count to below 4.5 million.
- Depression of a previously normal white cell count to below 6,000.
- Depression of a previously normal hemoglobin to below 12 grams per 100 cubic centimeters or 80 per cent by colorimeter.
- The appearance of immature or abnormal red or white cells in the differential count.

42. *Prevention.* Pre-placement blood counts should be made, and if there is continuous or repeated exposure to benzene vapor, the counts should be repeated at intervals of from one to six months.

43. These counts should be so recorded that previous counts for an individual can be readily compared with the current count. The recording system should also permit easy calculation of the degree of normal variation among all the individuals in the exposed group and should permit the supervising physician to obtain a summary of conditions in the entire group for any period.

44. An experienced industrial physician should examine and evaluate all blood count results because many diseases and conditions not connected with benzene exposure, or with any industrial exposure, may cause changes in blood counts.

45. Chronic benzene poisoning can be prevented by a combined program of medical supervision, industrial hygiene, and safety organization. The industrial hygienist can furnish methods for testing the air throughout the plant to detect harmful concentrations of benzene vapor and can suggest the best methods of handling the material to prevent these exposures.

46. The safety organization can train workmen to avoid exposure and can acquaint them with the dangers of the chemicals so that they will promptly report any hazardous conditions to those charged with controlling them.

47. The medical supervisor can watch over the physical condition of the workmen through periodic examinations. These examinations will detect locations or processes where precautions are inadequate. No method of prevention can succeed without cooperation among all departments of the organization and on the part of the workmen, who must understand the reasons for the precautions which they are to observe.

48. The medical supervisor should not only study periodic blood counts but also give pre-placement examinations and routine re-examinations. The pre-placement examination should prevent persons with blood dyscrasias, severe liver or kidney damage, or lung or heart disease from having contact with benzene.

49. Pregnant women and young persons in general are believed by many to be unusually susceptible to benzene poisoning. At the discretion of the examining physician, they may be excluded from work requiring contact with benzene.

50. New workers who have already had contact with benzene or other agents likely to cause damage to the bone marrow (such as TNT, x-ray, or radium) should receive special scrutiny since they may already be suffering from mild damage.

51. New workers who show pre-placement blood counts in the suspicious or abnormal range should be excluded from contact with

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benzene if only for the practical reason that their blood counts could not be reliable indices of bone marrow damage.

52. Some benzene is eliminated unchanged in the urine. Some is oxidized in the body to phenols and diphenols which, in turn, are conjugated in the liver with sulfate ions and excreted in the urine, thus increasing the ratio of ethereal or organic sulfates to total sulfates in the urine. This is the basis of a dependable control test to determine the severity of the overall daily exposure to benzene.

53. The ratio of inorganic sulfates to total sulfates in the urine is normally 85 per cent or above. Upon exposure to benzene this ratio is decreased, and the decrease is related quantitatively to the severity of the exposure to the point where nearly all sulfates are eliminated as organic sulfates.

54. Ratios of less than 70 per cent inorganic are abnormal and may be indicative of benzene exposure; they warrant investigation of exposure sources with a view toward correction. Ratios of 60 per cent or less inorganic indicate dangerous exposures warranting immediate correction and termination. Concurrent exposure to carbon tetrachloride, or any other material having an adverse effect upon the liver, may decrease the sulfate response so that ratios on the order of 70 per cent inorganic would indicate exposures of great significance.

55. The sulfate test must be made while the worker is on the job. It is not to be considered a method for diagnosing benzene poisoning, because the changes are merely indicative of exposure, not of poisoning nor of damage.

56. It is therein that the great preventive value of this test lies. The indication occurs in advance of demonstrable harmful effects, but forewarns of their coming if exposures are not reduced.

57. It seems logical to make urine sulfate tests, perhaps weekly, and periodic hematological studies of all workers coming in contact with benzene vapors. Air analyses for benzene in suspected atmospheres should be made frequently.

58. If these three control measures are consistently performed, and heeded, no fear need be entertained regarding use of benzene in industrial processes.

Skin Contact

59. Hands and arms should never be immersed in benzene or benzene solutions, nor should benzene be used to wash or rinse grease or other materials from the skin. Rubber gloves used to protect the operator should be frequently inspected for leaks. Protective creams insoluble in benzene but soluble in water may be used on exposed skin surfaces.

60. Benzene almost instantly dissolves fats and natural oils from the skin. It may cause reddening, dry scaling, and cracking, and predispose the skin to secondary infections. More prolonged contact may result in injuries resembling first and second degree burns.

61. Wetting of a large area of the skin with benzene is extremely hazardous and has caused fatalities in a very short time. Clothing wet with benzene should be removed immediately, and all portions of the body which have been wet with benzene should be thoroughly washed with soap and water.

Air Analyses

METHODS OF DETECTION

62. Of the several methods which may be used to measure the concentration of benzene vapor in air one of the most sensitive depends upon the color produced when benzene is brought into contact with a solution of formaldehyde in sulfuric acid. The concentration of the benzene vapor is measured by the amount of air which must be drawn through the sulfuric acid formaldehyde mixture to produce a standard color.² Toluene and xylene also react in this test although it is not as sensitive to them as to benzene.

63. Another sensitive test and a somewhat more quantitative one is the "butanone test" in which the air sample is passed through nitrating acid. After neutralization, the dinitrobenzene formed is extracted with methyl-ethyl-ketone. When some alkali is added to the

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methyl-ethyl-ketone solution, a purple color is formed, the intensity of which is a measure of the amount of benzene in the sample.³ As little as 10 ppm can be detected readily and measured with reasonable accuracy by this test.

64. A more rapid and convenient though less sensitive test is that obtained with the benzene detector. This is a very sensitive combustible gas indicator equipped

with a special filter to exclude water vapor. It has a special low range to get the concentration of interest from a toxicological standpoint and provides instantaneous reading on a dial graduated in ppm.

65. If pure benzene is not in use, the instrument must of course be calibrated in terms of the particular mixture employed in the plant.

66. Another convenient instru-

ment using an optical measurement is the organic vapor interferometer. This instrument measures the change caused by the gas or vapor in refractive index of the air. Since it will respond to any vapor present, it must be calibrated for the particular materials in use in the plant. It is also quite sensitive to sudden changes in temperature. Under good conditions it provides an extremely sensitive means of measurement.

67. The industrial hygiene survey should include air sampling at various strategic locations in all buildings where benzene is used, especially in the laboratory. The samples should be taken while regular operations are being carried on.

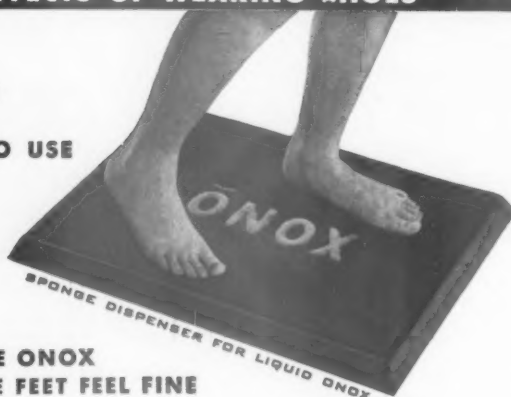
68. If the process is said to be entirely enclosed, special attention should be paid to the possibility of leakage at pumps, valves, gaskets, and other points of joining. If the benzene is used in open containers, the vapor content at the breathing level at each work station should be thoroughly investigated.

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Safety Equipment for all Industries

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69. The values found in such surveys should be recorded on a floor plan of the workroom. Sources of contamination will usually become apparent on such a map, and the ventilation can be designed to eliminate the hazards.

MAXIMUM ALLOWABLE CONCENTRATION

70. The American Standards Association has set 100 ppm for the maximum allowable concentration of benzene vapor in the air.⁴ In spite of this standard there has been an almost continuous movement to lower the maximum allowable concentration, and lower values are used by various state authorities. The safety code of one state now goes as low as 35 ppm. Because of these wide variations, the legal requirements for control of benzene vapor should always be carefully investigated.

Exhaust Ventilation

71. Benzene vapor is most efficiently removed by suction as close as possible to the point of genera-

tion. Increasing general ventilation to dilute the vapor is generally a far more expensive and much less effective method. In fact, sweeping large amounts of air through workrooms may increase the pollution of the air and is sure to increase the cost.

72. Exhaust hoods should preferably be located just around the upper rims of tanks or around the edges of work tables. These fixtures should have narrow slots so placed as to assure even distribution of the exhaust around the

working area. This method utilizes the high specific gravity of benzene vapor (nearly three times that of air) and tends to prevent the vapor from escaping from the point of operation.

73. Inasmuch as benzene vapor is heavy and has a tendency to settle, low points in areas in which benzene is used should be ventilated by suction. However, it should be noted that as the benzene vapor becomes more dilute, the tendency to settle becomes less and the tendency to mix uniformly

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with the air in the room becomes greater.

74. It is expensive to attempt to oppose the natural air circulation in the area. If heat in the process or some other influence produces a strong thermal movement, this movement should be utilized in the exhaust system rather than opposed. The air should, however, in every instance be exhausted away from the operator and never drawn past his face.

75. All rooms where benzene is

used, even in small quantities, should have sufficient positive ventilation to keep atmospheric concentration below the safe limit in all occupied areas. Open windows cannot provide efficient positive ventilation because they may be closed during inclement weather and at the will of the operators.

76. The exhaust ventilation systems should conform to the regulations of the National Fire Protection Association.^{5, 6}

77. The use of a fountain cup

or some other type of closed container is suggested where benzene or benzene mixed with other ingredients, such as rubber, bakelite, or artificial leather "dope," is used. Where the operation requires that large vessels containing benzene remain uncovered, the vapors can readily be removed if the vessel is placed within a larger container, at the bottom of which suction is applied.

Fire and Explosion

78. The fire and explosion hazards of benzene are similar to those of other flammable solvents of approximately the same boiling range. Because of its low flash point (12 F, "closed cup"), benzene is rated as extremely flammable. Benzene vapors when mixed with air in proper proportions are explosive if ignited. The Underwriters' Laboratories' fire hazard classification for benzene is 95 to 100 on a scale in which ether is the standard for 100.

79. One of the best fire prevention devices for this and other flammable solvents is a properly designed and operated exhaust system which will keep the vapor con-

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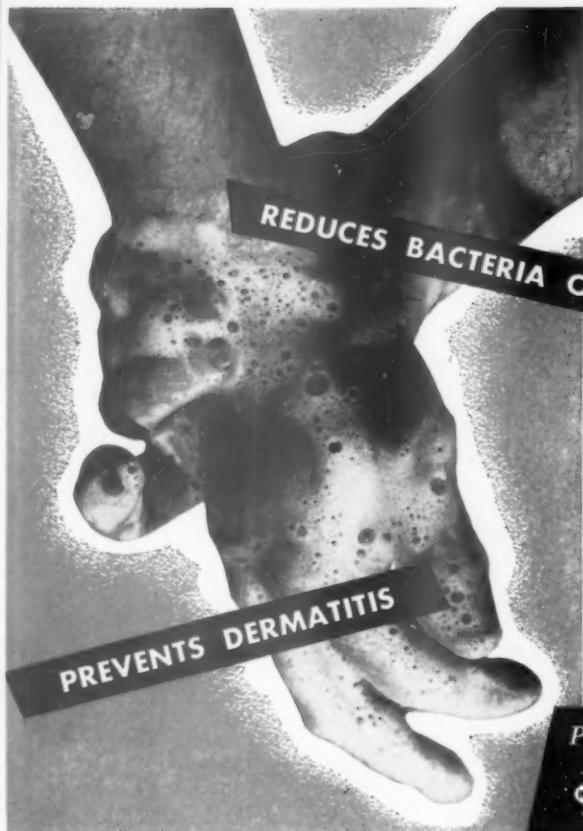
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NATIONAL SAFETY COUNCIL

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centration throughout the plant well below the explosive range.

PREVENTION

80. Because of its low flash point (12 F) and low explosive limits (1.5 per cent), every precaution should be taken to prevent the ignition of benzene vapor.

81. Only non-sparking tools should be used in atmospheres which may contain this vapor. Windows and openings of buildings which house benzene proc-

esses should be carefully screened with copper or bronze screening to keep sparks from locomotives or other sources from entering and causing ignition.

82. Indirect heating systems are preferable to direct systems. No heating apparatus, whether direct or indirect, should be located close enough to the flammable liquid that splashes might strike the heated surface and be ignited.

83. The "no smoking" and "no

matches" rule should be strictly enforced. Open flames, such as torches, heating and welding apparatus, stoves, or gas burners, should never be used in the same room with open benzene operations.

84. When open flame apparatus must be used in the vicinity or even in other rooms, the possibility of its acting as a source of ignition should be thoroughly investigated and the operation should be carried out only after proper precautions have been installed and a permit has been issued by the plant fire prevention department.

85. Electrical installations should be made in accordance with the National Electrical Code.⁷

86. Static discharges should be prevented by the use of electrical grounding and static brushes on all points where there may be static accumulations.⁸

PROTECTION

87. Sufficient hand and automatic fire protection apparatus

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W-50
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Jackson Goggles give adequate protection against the hazards of the jobs for which they are recommended. But to be effective they must also be worn. So we made them attractive in appearance, light and easy to wear. They are easy to adjust to any head size, and eye cups are easily fitted against the wearer's face.

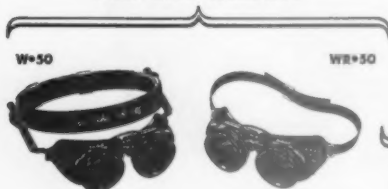
The headrest type goggles, shown above, have concealed springs to hold the goggles gently against the face, and may be moved up and down with one hand.

Made in four types as shown below, the welding goggles have 50 mm. lenses in shades from 3 through 6, with cover glasses for protection. The grinding goggles have clear hardened lenses only.

Jackson Products, Warren, Michigan

JACKSON GOGGLES

FOR GAS WELDING



FOR CHIPPING AND GRINDING

SOLD EVERYWHERE BY SAFETY SUPPLY DEALERS AND WELDING SUPPLY HOUSES



For Safety Guard-Ann Hat

Combines utmost protection and style. Exclusive patented features found in no other hat.

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\$13.50 dz.

CHIC MAID HAT MFG. CO., Inc.
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should be provided where open benzene processes are used. Carbon dioxide, foam type, or dry powder extinguishers furnish excellent protection. Steam has also been found satisfactory.

88. The location of the hand apparatus is very important; it should be outside the danger area but readily accessible to the place where the benzene is used.

89. Steam jets may be provided to extinguish vent fires caused by lightning.⁹ Tanks and vats should have heat-actuated automatic covers; and other fire protection, such as sprinklers or other extinguishing media, should be automatic in operation.

STORING AND HANDLING

90. Benzene, like other flammable solvents, should be stored and handled in accordance with the regulations of the National Fire Protection Association.¹⁰

91. The solvent piping systems in the plant should be painted and

stenciled in accordance with American Standard A13-1928, "Scheme for the Identification of Piping Systems."¹¹ Containers and piping systems should be inspected frequently for breaks and leaks, and all such defects should be corrected at once. When such repairs are being made, the workmen should be carefully supervised.

92. Large quantities of benzene should be stored outside buildings, preferably in underground tanks,

unless the structures are especially designed for benzene storage. Tanks should be vented through flame arresters.

REFERENCES

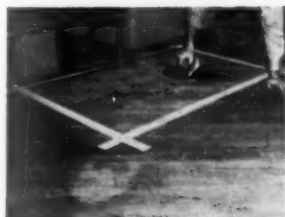
1. "Warning Labels, Manual L-1," Manufacturing Chemists' Association, Inc., 246 Woodward Building, Washington 5, D. C.
2. "Methods for Determining Toxic Gases in Industry, Leaflet #4, Benzene Vapor," His Majesty's Stationery Office, London.
3. "Micro Determination of Benzene," Schrenk, Pierce and Yant, U. S.



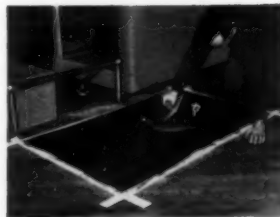
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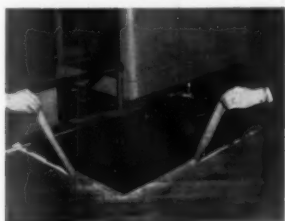
... on any floor or walking surface. First, clean floor surface until free from dirt, grease, etc. Paint does not need to be removed if it has a good bond.



For Small Areas, Mask Off—
With steel trowel, apply 1 thin coat.



Apply Second Filling Coat—
After drying first coat 1-3 hours.



Remove Masking Tape—Allow 8-10 hours drying. Then ready for use—underfoot safety assured.



Safe Floors at Low Cost
1 gal. can—\$7.50 per gal.
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One gallon covers 40 square feet.
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PLASTIC INDUSTRIAL MARKERS:—A thin durable, plastic marker, easily applied to almost any floor or paving with a cold set cement. Ideal for marking aisles, storage zones, garage stalls and parking lots, docks and platforms, etc. Non-absorbent and resistant to dirt, oils and most solvents. Comes any width and length. Most popular markers are 3" x 6" spaced 6". Sheets are available for your use in cutting your own "pavement messages" such as "STOP", "DANGER", directional arrows, etc. Colors are yellow, white and red. State use and we will advise on markings.

Good "Shop-Housekeeping" Means A Better Safety Record.

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"TRED-EZE":—A durable sponge rubber pad for cementing to hard floors where workers stand. Apply by wetting adhesive back with solvent and press into place. Comes in NEOPRENE where oils and destructive agents occur. Thicknesses are 1/8" and 3/16". Size 24" x 10' for cutting your own pads.

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MEILI-BLUMBERG CORP., Box 165, New Holstein, Wis., U.S.A.

INDUSTRIAL MARKERS

Bureau of Mines Reports of Investigations 3287 (1935) and 3302 (1936).

4. "American Standard Allowable Concentration of Benzene, Z37.4-1941," American Standards Association, 70 East Forty-fifth Street, New York 17, N. Y.

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6. Safe Practices Pamphlets No. 32, "Exhaust Systems," and No. 91, "Spray Coating," National Safety Council, Chicago, Ill.

7. "Standard of the National Board of Fire Underwriters for Electric Wiring and Apparatus," NBFU Pamphlet 70, National Board of Fire Underwriters, 1947.

8. Safe Practices Pamphlet No. 52, "Static Electricity," National Safety Council.

9. "Standard of the National Board of Fire Underwriters for the Installation, Maintenance and Use of First Aid Fire Appliances," NBFU Pamphlet 10, National Board of Fire Underwriters.

10. "Standard of the National Board of Fire Underwriters for the Installation of Containers for Storing and Handling Flammable Liquids," NBFU Pamphlet 30, National Board of Fire Underwriters, 1941.

11. See also Safe Practices Pamphlet No. 88, "Identification of Piping Systems," National Safety Council.

ACKNOWLEDGMENT

This data sheet was prepared by Robert M. Watrous, M. D., medical director, Abbott Laboratories. The many helpful suggestions for improvement of the first draft which were made by the Safe Practices Conference Committee of the National Safety Council are gratefully acknowledged. The final draft was edited by F. A. Van Atta, director of industrial hygiene, National Safety Council, and approved by the Council's Industrial Conference.

Mechanized Mining

(From page 23)

year of 1947 some 262,000,000 tons of bituminous coal came from producers in the class of 500,000 tons annually. About 57 per cent of that tonnage came from mines which are practically entirely mechanized. Only 5 per cent of that output from the big mine category came from entirely hand-loading operations.

The rapid extraction of coal by modern cutting and loading machines is no doubt a great factor in preventing roof from becoming hazardous through long standing.

This influence is all to the good.

The operators of the cutting and loading machines manage the controls well back from the face; from 20 to 25 feet. This allows roof control crews to move in quickly to do their job in preventing roof falls on the operating crews.

A notable advance in drilling has taken place to keep abreast of the increased tempo of cutting and loading. The controls of mobile drills are well back from the face, allowing operator to work under well supported roof. Furthermore, a greater number of holes can be drilled in a shorter space of time. This means smaller blasting charges can be used for breaking down the coal. Naturally a smaller charge will do less damage to the roof than a larger one.

The latest machine to appear on the scene is the continuous miner, which combines cutting, drilling and blasting into a single, coordinated operation. This particular machine also eliminates the drilling and blasting cycle.

The continuous mining machine appears to have great pos-



YOU CUT COSTS with GOLD MEDAL MIDGET Safety Swinging Scaffolds

A midget in size...a giant in safety, the GOLD MEDAL "Midget" scaffold is a handy time and labor saver.

- **SAFE!**—Steel wire rope assures extra strength. Positive 3-way lock prevents slipping or running down.
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A Complete Nation-Wide Scaffolding Service—based on seventy years experience in designing, making and supplying off-the-ground safety equipment for the building trades assures you:

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Teach fundamental safety rules with 120 pages of grins and guffaws.

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● time saving

Clip cartoons and post on bulletin boards. Every one is a miniature safety story of a typical Ditzgen character in a tight spot through failure to observe basic safety practices.

● effective

Popular with all age groups . . . makes a fine souvenir at safety dinners or plant safety rallies.

● low cost

Just a few pennies brings this hilarious collection of safety cartoons designed to perk up interest in your safety program.



ORDER TODAY "I JUST GAVE MY SEAT TO A LADY"

MEMBER PRICES	1 to 9	10 to 99	100 to 999	1000 or more
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sibilities in the conservation of human beings. Timbering can be continually advanced ahead of the operator's controls.

Roof support is a foremost requirement of operational safety, so timbering machines are making their appearance to keep the roof promptly and continuously supported as the machine advances. The general practice involves the hand-cutting and hand-setting, lifting the wood props with its attendant back straining and exposure under unsupported roof.

Roof Bolting

Newest timber setting machines are being adapted for roof bolting. Research is now striving to apply electronics for the detection of faulty roof. (See "Research in Coal Mine Safety," NATIONAL SAFETY NEWS, November, 1949.)

The use of these modern machines has permitted the extraction of coal in smaller areas. This has meant that ventilating facilities are better concentrated, and the number of doors and deflecting curtains is greatly reduced along the underground haulage-ways.

Rock-dusting is a primary safety precaution in bituminous coal mining. Mechanization has simplified the task of keeping the main haulageways coated with the finely-powdered limestone for neutralizing the spread of fires or dust explosions.

Let us reflect that there was a time when men had to push cars up to the working face for the loading, and that was conducive to mishaps. Drivers behind horses would take the loaded car away. Uncoupled cars entailed blocking. The mechanization of haulage through the electric locomotive is familiar in the underground mass production factory which is the modern bituminous coal mine. The low, compact, little electric mine locomotive exemplified a big advance in mechanization, and in operational safety. Today, coordination of machine-loading with train haulage, with the cars staying coupled, has cut down the hazards implicit in blocking and managing uncoupled cars.

Advances are being made in the design of electric haulage

locomotives. Electric braking and sanding, and high, rounded ends of substantial steel construction, found on the latest haulage locomotives, protect the operator. Brighter and more reliable headlights are now used.

Trackless Shuttle Car

The trackless shuttle car now serves significantly, being powered either by batteries or by a sheathed electric cable for maneuvering in and about the working face. It eliminates the need for laying new track at the concentrated safety-critical area, and it is in point that frequently such track was hastily and poorly laid.

The endless conveyor belt is coming into wider use in big modern mines. This implies fewer accidents from moving trips through constricted haulageways.

Progress is being made in underground two-way communication. It is now possible for dispatchers to keep in constant touch with moving equipment. Warnings of danger or emergency can

be given instantaneously to men throughout the mine. Movement of supplies is more safely expedited.

Modern elevators for handling men are now displacing the old-fashioned cage which was primarily designed for coal handling.

Special man-trip cars have been designed for the sole purpose of transporting workers to underground points safely and swiftly.

Facilities for withdrawing in-

jured men are improved. Ambulance cars or "jeeps" can hurry the victim out of the mine.

Adequate ventilation is a fundamental requirement in bituminous mining. The modern fans are safer and more efficient than old-fashioned equipment.

Rotary core drilling has made it possible to sink shafts more quickly for providing air shafts and means of egress from individual sections of a mine.

Lights worn on miners' caps

PROTECT EMPLOYEES

against

UNNECESSARY HEAD INJURY



Here, at last, is a light weight, plastic safety helmet, resistant to 3,000 volts of electricity, and by actual test, able to sustain 80 foot pounds under ball impact. What's more, the Paramount safety helmet is light as a feather—comfortable, waterproof, adjustable to head sizes (6½ to 8), and with enough clearance space between head and helmet crown to cushion and absorb intense impact. Genuine leather suspension band has long life and stands up under years of use.

For Use in Mines

A miner's lamp bracket, adaptable to every type of lamp, can be furnished either on helmet or cap. Being entirely a non-conductor of electricity, this is the safest miner's helmet available.

Winter Lining

For increased warmth, a two piece lining with a flannelette facing is provided. The lining is sanforized, warm, and is made in a full range of head sizes.

As the producers of millions of M1 Army helmet liners, the famous Cairns-Paramount Firemen's helmet, the Army, Navy and Civilian Air Corps crash helmet for jet pilots and other air corps personnel, the Army Quartermaster Tank Corps helmet, we are specialists in this field and offer you greater protection with lighter weight.

The Paramount helmet and cap are produced under one or more of these patents—No. 2-420-522, No. 2-423-076, and other patents are pending.



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- Distinctive Beauty With Utmost SAFETY—

Here's the New Vinyl Link Mat that meets unlimited service applications.

KEEPS ITS NEW LOOK...

These Vinyl links outwear ordinary rubber links many times... Color stays clear and bright... They resist soil absorption, keeping their clean look longer. They are firm and resilient, giving continuous slip-proof SAFETY. They resist oil, gasoline and grease — won't soften or damp rot. Assembly of colored links permits optional designs in red, brown, green, white and black.

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L. E. WARFORD, President
410 S. Broadway, Akron 8, Ohio In Canada: P. O. Box 411, Fort William, Ont.



IN STANDARD COMBINATION OF
COLORS and SIZES — Or Made
To Your Specifications —

Standard pattern shown above: Black with red link border and center in 17" x 25", 18" x 30", 24" x 36", 30" x 48"... Made also to your requirements in size and color design... Write today for full story and prices.

have notably improved since the last generation. The old smoky "coffee pot" oil lamps with their poor illumination and vitiation of the mine atmosphere were large draw-backs. Progress will, no doubt, bring still brighter electric cap lights so that roof and functioning of machines may be clearly observed.

Problems of Machinery

It must not be assumed that the mere introduction of machines in a coal mine will eliminate accidents. There remain certain hazards inherent to the industry, and a machine may create a new hazard of its own while eliminating old ones. Live electric cable, rolling wheels, revolving gears and rotating cutting bits are capable of causing injury if proper procedure is neglected. Machines have brought vibration and noise into the mine. Conveyor belts of rubber fabric may catch fire if certain safeguards are neglected. Swiftly moving trips along a poorly lighted haulway are a hazard.

In net results, however, the mechanization of bituminous mining has paid off in operational safety, while multiplying the productivity of a workman's day for supporting the bituminous miner's high wage standards.

Where do we go from here?

The coal miner of modern practice uses machines which have removed drudgery and made possible high wage standards. It is now up to the individual to apply these expensive machines with skill and safety-conscious understanding. The bituminous industry devotes some \$80,000,000 annually to devices and materials for the safe working conditions of its mining labor force.

In the final analysis, however, all this is of little avail unless safety-thinking men do their jobs carefully. As along the highways, in the homes and in other industries, responsibility for safety of the individual rests primarily in his own hands. Mine management can assist by providing educational facilities for instructing men in the safe usage of equipment and cooperation with the management's policy to make working conditions more safe.



Pittsburgh

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**contributes to
improved operation of
a model iron foundry**

**Albion Malleable Iron Foundry
utilizes energy in color to make
its huge 62-year-old plant a
more efficient, more attractive
and safer place for its workers.**

PRODUCTION executives in almost every branch of industry today eagerly seek out and investigate every development that will aid them to build more and better goods at lower cost. That's why so many are using Pittsburgh COLOR DYNAMICS to repaint plants and equipment.

● By actual experience they have learned that this new system of painting—based upon the scientific principles of the *energy in color*—invariably results in more efficient and more economical production.

● Characteristic of such experience are the results achieved with COLOR DYNAMICS by the Albion Malleable Iron Company, of Albion, Michigan. During the past year this 62-year-old plant has been modernized in appearance as well as in manufacturing methods and processes until today it stands as a model for its entire industry.

● "Recognizing that proper painting can be the visual expression of the progressive attitude of an organization," writes T. T.

Lloyd, Vice-President of this company, "we decided to color engineer our plant according to COLOR DYNAMICS. We selected colors that would improve working conditions in all departments throughout the plant and offices.

● "These changes have contributed to higher production efficiency, improved morale and a better safety record. House-keeping problems, too, have been simplified, making it easier for us to secure more favorable insurance rates.

● "Important as these direct results of COLOR DYNAMICS are to management and workers alike, of equal importance to our company have been other long-range benefits. The improved appearance has increased good will and respect in our community. The cleaner, better-lighted and pleasanter plant attracts a higher type of worker both for executive and production jobs.

● "Visitors, too, have been favorably impressed by our modernization program.

Among these have been many current and potential customers whose confidence in our ability to produce quality castings in large volume has been strengthened."

**Let us make a COLOR DYNAMICS
Engineering Study of your plant—FREE!**

● Why not try COLOR DYNAMICS in your plant—on a machine or two, or in one department—and see the difference it makes? We'll be glad to make a scientific color engineering study for you FREE and without obligation. Call your nearest Pittsburgh Plate Glass Company branch and arrange to have our COLOR DYNAMICS representative see you at your convenience. Or mail the coupon.

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☐ Please have your representative call for a Color Dynamics Survey of our properties without obligation on our part.



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Posters numbered 8700 and up are new posters. Others are among the 744 posters shown in the 1950 Poster Directory.

Write to Membership Dept. of N.S.C. for further information.



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NATIONAL SAFETY COUNCIL
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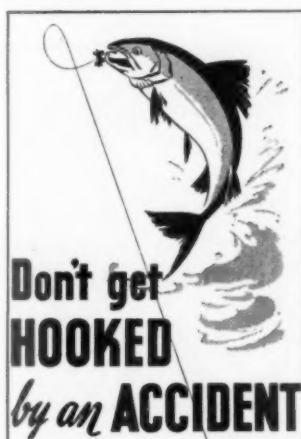
JUMBO POSTER for JUNE 1950

Jumbo posters 9' 11" by 11' 8" in size, designed for outdoor use, are issued monthly. They are available to members for \$42.50 annual subscription.

YOU NEED SUNSHINE
...but avoid OVER-EXPOSURE



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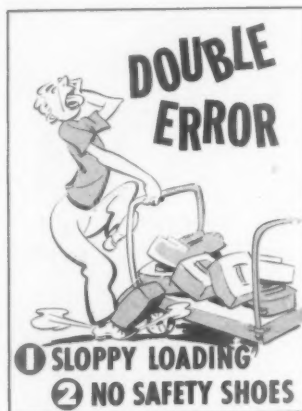
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NATIONAL SAFETY COUNCIL

8884-A

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NATIONAL SAFETY COUNCIL

8989-A

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**SOMEONE
MAY GET HURT -**



— unless you use
standard signals

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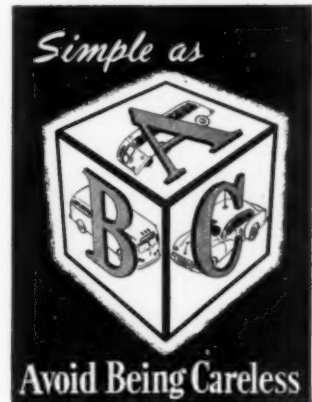
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V-8999-A

8½x11½



NATIONAL SAFETY COUNCIL

V-9001-A

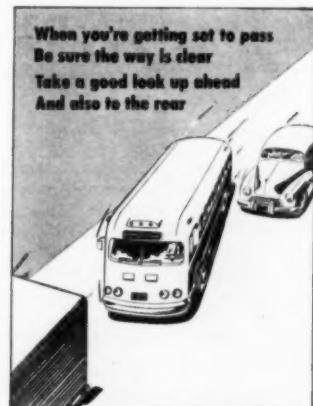
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NATIONAL SAFETY COUNCIL

V-9000-B

17x23



NATIONAL SAFETY COUNCIL

V-9002-B

17x23

See box on page 102 for information about these and other National Safety Council posters.



New Off-the-Job Leaflets

To help the safety director attack the problem of off-the-job accidents among employees, two brand-new 8-page leaflets, "Driver's Lucky Seven" and "Happy Vacation," are now available from the Council.

With cartoon illustrations designed to attract interest and with concise copy which is easy to read, the leaflets carry safety suggestions which affect attitudes on the job. They are printed in two colors, and their size, 3 7/8 inches by 8 inches, makes them especially suitable for use as mailing pieces.

"Driver's Lucky Seven" sums up the common-sense practices which most drivers know but do not always use. The leaflet is both a reminder and a catchy appeal to each reader to make his own luck. It is a good brush-up item for the fleet man, too.

The second leaflet mentions precautions which will help make vacation activities not only pleasurable, but also safe. Swimming, small boats, hunting, camping are among the subjects covered. To increase the leaflet's "take-home" value, a chart for jotting down travel expenses appears on the last page.

So that the leaflets can be distributed as a company's personal messages to its employees, imprint space is provided on the covers.

Member prices per leaflet: 1 to 9 copies, 5 cents each; 10 to 99, 4 cents each; 100 to 999, 3 cents each; 1,000 to 4,999, 2 1/2 cents each; 5,000 to 9,999, 2 1/4 cents each; 10,000 to 24,999, 2 3/10 cents each; 25,000 or more, 2 2/10 cents each. Samples on request.

1951 Safety Calendar

Now is the time for the safety director to think of ordering his supply of 1951 National Safety Council safety calendars—espe-

cially since orders postmarked not later than May 31, 1950, and paid for before December 1, will receive a 5 per cent discount.

Distributed to employees, the calendar brings safety into the home in a dramatic and appealing way. Each calendar sheet displays a full-color, human-interest painting, carries practical safety suggestions on the back, and features a Safety Limerick Contest, with cash prizes, conducted by the Council.

Since safety limerick contests within an organization can be a highly successful means for maintaining interest in the safety program, a complete kit of materials to help the safety director run such contests will be sent to all who purchase 200 or more copies of the 1951 calendars, and, on ten-day approval, to any others who ask for the kit.

Member prices:

Quantity F.O.B. Chicago	Packed flat in bulk Each	In mail- ing tubes Each
1 to 9	50¢	55¢
10 to 199	48¢	51¢
200 to 999	40¢	43¢
1,000 to 9,999	36¢	39¢
10,000 or more	33¢	36¢

Non-member prices on request.

Eddie Cantor Recordings

How to make the audience at a safety meeting sit up and take notice is sometimes not an easy problem to solve. Being able to present Eddie Cantor as a safety speaker (even though on a recording) ought to turn the trick.

Those who attended the 1949 Congress Banquet will remember the highlight of the program—the splendid inspirational talk given by Eddie Cantor. This talk is now available on a record, and will enable the safety director to bring a famous personality to his safety meetings without prohibitive cost.

The records, which may be ob-

tained from Council headquarters, are \$5.50 each.

Dating Posters

As every safety man knows, regularity and frequency of poster changes are important factors in the effectiveness of a poster program. To assure that posters are put up and taken down on a definite schedule, one member suggests that the dates for posting and removal be inscribed on each poster when it is received by the safety department.

Since it is not feasible for the Council to imprint all posters, it would probably be most economical to have a rubber stamp made with a line for the date of posting and another for the date of removal.

When a poster has been stamped, date lines have been filled in, and the number of the poster has been entered on the schedule, the poster can be released. This method will provide an effective check on those responsible for keeping poster boards up-to-date.

Operation Safety

Knowing that safety does not end when the employee walks or drives out of the plant gate, many safety directors conduct off-the-job safety programs to the limit of their resources.

The plant safety supervisor can help his company build good will by cooperating with the local safety council in its public safety program or by using traffic safety promotional materials in the monthly Operation Safety kits published and distributed by the Traffic and Transportation Division of the National Safety Council.

Those having active Operation Safety programs in their communities will do well to key their off-the-job traffic efforts to the various monthly themes so that each program will supplement the other.

Operation Safety themes for coming months: May—Vehicle Maintenance; June—Speed Control; and July—Vacation Driving. Complete information, subscription and material prices, or the

names of those who receive Operation Safety in your community are available upon request from the Traffic and Transportation Division, National Safety Council.

5-Minute Talks

Reader response to the 5-minute safety talks currently appearing in the INDUSTRIAL SUPERVISOR, the Council's monthly magazine for supervisors, indicates that this series is filling a long-felt need.

For example, the division manager of a well surveying corporation writes, "The five minute safety talk is a perfect example of badly needed material. Our foremen will greatly benefit from it. The attention of our district engineers is being called to this issue."

The talks are planned to help the foreman organize his ideas and to give him sound safety instructions which he can pass on to his workers, preferably in his own words. The series will provide valuable source material for all those in the organization who have to do with worker training.

The first four subjects covered were induction, helping the new worker, first aid, and housekeeping. The May issue of the SUPERVISOR features a 5-minute talk on lifting, and the subject for the June issue will be ladders.

Member prices for the INDUSTRIAL SUPERVISOR: 1 to 9 annual subscriptions, \$1.65 each; 10 to 99, \$1.55 each; 100 to 999, \$1.50 each; 1000 or more, \$1.45 each.

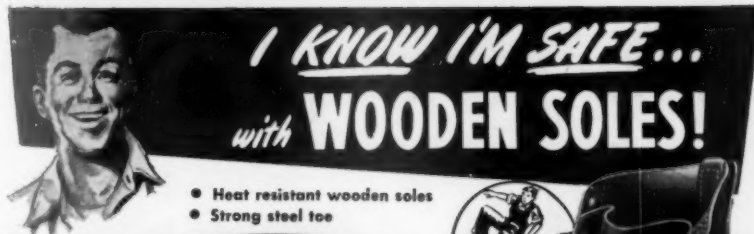
Yardstick for Safety

(From page 30)

curred. Let's take a closer look at the "severity rate."

Severity rate = $\frac{1}{1000} \times \text{Frequency rate} \times \text{Average days charged per injury}$.

This equation indicates that the "severity rate" is really the frequency rate weighted for the severity of injuries that make up the frequency rate, the weighting factor being the average days charged per injury. For example, if all disabling injuries were of 1 day duration the weighted frequency rate, after adjustment of the decimal point, would equal the frequency rate. If injuries were of 2 days duration the weighted frequency rate, after adjustment of the deci-



I KNOW I'M SAFE...
with **WOODEN SOLES!**

- Heat resistant wooden soles
- Strong steel toe

FOR THE FACTORY...

Wear a Reece "Strong Toe." Comfortable leather uppers. High, roomy steel toe protector, heat-resistant wooden sole. Have comfort-safe feet at work in oil refineries, foundries, steel mills, factories.

No. 504-S



...FOR THE FOUNDRY

The Reece "Hot Foot" sandals. Protect your feet in furnace and coke oven rooms. Straps on over your own shoes. Heat resistant wooden sole, strong galvanized iron counter, flexible hinge toe. Cannot slip.

BE SAFE THE REECE WAY...
WITH A REECE "HOT FOOT"
SANDAL

No. 300

REECE WOODEN SOLE SHOE CO.



There is no substitute for Reece Wooden soles

Dept. NS-5

Columbus, Nebraska

FOR GREATER SAFETY!

Wedglok

PATENTED

CONNECTING LINKS

SAFETY • STRENGTH • SIMPLICITY • ENDURANCE



Combination sling of wire rope and chain connected by Wedglok safety links

A vastly improved connecting link that combines safety with unique simplicity in assembly. Its strength exceeds the published strength of comparable alloy chain . . . assembles rapidly without the use of special equipment.

WEDGLOK is widely used in steel mills, foundries, structural fabricating plants and other material handling operations in which on-the-spot replacement of links is important.

Regular and pear shape. Sizes $\frac{3}{8}$ " to 3".

Available at your local distributors.

MAIL THE COUPON FOR PRICE LIST AND INFORMATION

A PRODUCT OF
**INTERSTATE
DROP FORGE CO.**
4073 N. 27th ST., MILWAUKEE 9, WIS.

Please send WEDGLOK data.

Name _____
Firm _____
Address _____
City _____ State _____

Guaranteed 15% Longer Wear from **BROOKVILLE** Golden Fleece Palms

and you pay no more
for these fine gloves

BROOKVILLE golden brown fleece palm gloves are made with napped facing fabric 25% heavier than standard, and give you 15% longer guaranteed wear... yet these gloves cost no more. Available in knit-wrist and long palm gauntlet styles. Made slightly oversize to reduce strain on seams. Write for catalog and price list.



A Complete Line of Work Gloves for Industry

STOCKED IN FOUR WAREHOUSES
For Fast Deliveries



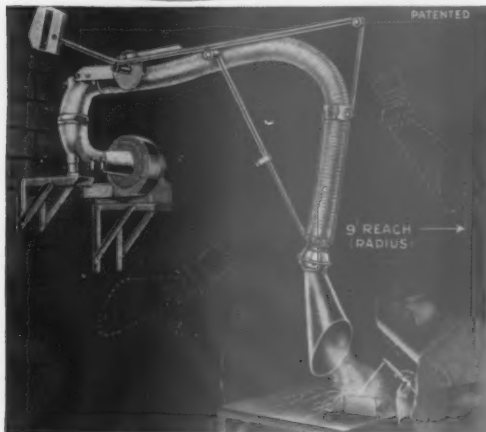
Ample stocks of Brookville Gloves are carried in our warehouses located at: Patterson, New Jersey; Brookville, Pennsylvania; Chicago, Illinois and Los Angeles, California.

BROOKVILLE GLOVE CO.

6 HENRY STREET

BROOKVILLE, PA.

*"It certainly is a relief to have fumes
and heat removed while I'm welding.
The Ruemelin Collector has great suction.
It makes a day's work pleasanter!"*



Ruemelin Fume Collector In operation.

Welding shops equipped with Ruemelin Fume Collectors are assured of a clean shop atmosphere. Noxious fumes, heat and smoke are eliminated at their source, thus improving working conditions, lessening fatigue and paving the way for increased plant production.

The Ruemelin Fume Collector hood can be instantly placed where needed anywhere in the booth welding area. No tedious adjustments necessary. Just pull the inlet hood to the welding position and you are ready to go. Approved by state industrial commissions and by compensation insurance companies. Simple to install. Thousands in service. Many users send in repeat orders. Write for bulletin 37-D today.

RUEMELIN MFG. CO.

MANUFACTURERS AND ENGINEERS

SAND BLAST AND DUST COLLECTING EQUIPMENT

3885 NORTH PALMER STREET

MILWAUKEE 12, WISCONSIN, U. S. A.

A 5718-1/4

mal point, would be twice the frequency rate. Adjustment of the decimal point is necessary only because of the arbitrary choice of one million man-hours and one thousand man-hours as the units of exposure. In short, the so-called "severity rate" is identifiable as a weighted frequency rate.

For a given frequency rate it is possible for the "severity rate" to vary over a tremendously wide range.

For example, if a small company works 100,000 man-hours a year, and has 1 disabling injury, its frequency rate is 10. If that one disabling injury is a temporary total disablement of 1 day duration, the company's "severity rate" is 0.01. But if the one disabling injury is a fatality, the company's "severity rate" is 60. The second "severity rate" is 6000 times greater than the first because the ratio of the severity weighting factors, that is, days charged per injury, is 6000/1.

Of course, the range in the "severity rate" is seldom as great as this, either in the year to year performance of one company, or within a group of companies. The range within which it fluctuates tends to narrow as the man-hours of exposure increase. But the man-hours of exposure needed to make the standard "severity rate" a reliable index of basic performance are beyond the reach of even the largest companies in any one year.

The tremendous swings in the "severity rate" are due to the fact that fatalities and permanent disablements are charged to the year of occurrence at values which cover the average working life expectancy of victims at time of death. When the schedule charges were originally set up, this average working life expectancy was estimated at 20 years.

This practice might be all right if we are primarily interested in a measure which is roughly proportional to year to year costs within a company or in costs between companies within a state during any one year. Reserves are usually set up in the year of occurrence to cover the total expected costs of injuries, both serious and minor. In that sense the standard "severity rate" has meaning.

But in statistical comparisons we are trying to evaluate basic performance by one year's experience. In making such an evaluation it seems wrong to place the entire time charge for a fatality or permanent disablement in a single year when it actually covers a 20 year period.

Practical operating men intuitively reject such a procedure as being unwarranted and unsound for comparative purposes. Theoretical analysis of the practice supports their viewpoint. The solution lies in charging to the year of occurrence only that part of the total schedule days which is chargeable to the year of occurrence. This places schedule charges on a comparable basis with time lost from temporary total disablements which are, on the average, only several weeks in duration.

Fatalities and permanent disablements, therefore, for annual evaluation of basic performance are entered at 1/20 of their schedule charges. Temporary total disablements are entered at their full value. This results in a modified "severity rate" (weighted frequency rate or performance index) which is the single measure of over-all performance. The formula is:

$$\frac{\text{Days lost, temp. totals} + \frac{1}{20} \text{Schedule charges}}{\text{Manhours worked}} \times 1,000$$

Another way of stating it is:

The standard "severity rate" of temporary total disablement plus 1/20 of the standard "severity rate" of all other injuries.

The weighted frequency rates or performance indexes for the 4 states, giving proper weight to schedule charges as suggested above are shown in Table III.

TABLE III
Weighted
Freq. Rate

STATE A	0.284
STATE B	0.307
STATE C	0.279
STATE D	0.283

It will be noted that the final standings are surprisingly close to each other. We are, in fact, far closer in performance than we have thought ourselves to be, both interstate and inter-company. We have been obscuring this fact very

BE FRESH STAY FRESH

wear a

DUPOR No. 46

**U.S.B. of M. Approved
Respirator for Type A
and Lead Dusts**

Sample sent \$250.00

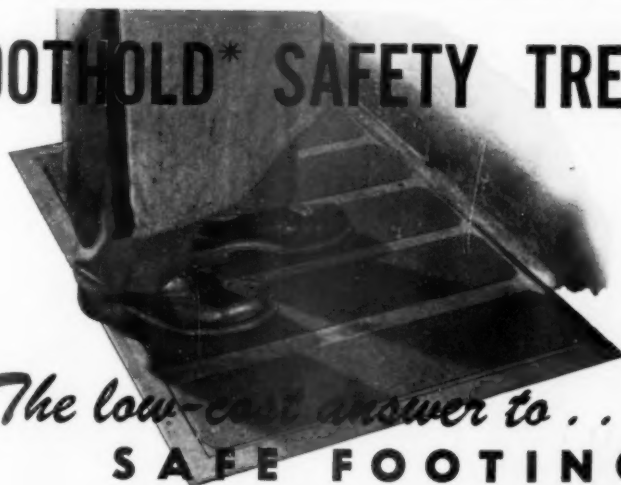


More than 46 sq. in. filtration area. Soft rubber face mask.

U.S.B. of M. Approval BM-2124 for LEAD DUSTS and ALL other toxic or poisonous dusts as well as Type A (Pneumoconiosis or Silicosis producing dusts). Controlled breathing . . . patented check valves and bulb type exhalation valve guard against re-breathing stale air.

H. S. COVER, South Bend, Ind.

FOOTHOLD* SAFETY TREAD



The low-cost answer to . . .
SAFE FOOTING

Eliminate all those dangerous, slippery floor areas on ramps, aisles, stairways and all over the plant. You can do it economically with quickly installed, long-wearing abrasive cloth FOOTHOLD Safety Tread cleats or rolls. The "sandpaper-rough" surface provides the sure-footing that makes the job go faster as well as safer.

Survey all those slippery areas and make them safe now with FOOTHOLD Safety Tread. Write for information.

*Trade Mark



BEHR-MANNING • TROY, N. Y.

Use **NORTON** abrasives sharpening stones

Are Your Bulletins Read?



POST THEM ON DIAMOND BULLETIN BOARDS

Illuminated for 24 hour visibility

Employees are more likely to read and heed, if you make it easy for them. On Diamond Bulletin Boards your messages can be read night and day, in any kind of weather, because

Diamond Bulletin Boards are illuminated and ventilated against fogging.

Diamond Bulletin Boards are made in single and double units. Write for prices.

SAFETY FIRST SUPPLY COMPANY

425 Magee Street, Pittsburgh 19, Pa.

*We're on the OUTSIDE
looking in*



... yes, looking into your plant ... and we find that if you are using Halsey Taylor Coolers and Fountains you have satisfied workers and better production! If you're not, you'd better write for our latest catalog, illustrating and describing the new 1950 Halsey Taylor Coolers and Fountains.

THE HALSEY W. TAYLOR CO.
WARREN, OHIO

HALSEY TAYLOR
Fountains and Coolers

F-2

effectively by use of the frequency rate and the standard "severity rate" alone.

The Common Goal

One point should be emphasized before closing this discussion. Injury statistics are measures of our past failures in accident prevention. But accident prevention is a forward looking activity. Our job is to prevent future injuries. The principal purpose of statistical measures, therefore, should be to serve as guides, pointing the most promising ways to progress.

It is not enough to be content with a low frequency rate if the average severity of injuries is high. Neither is it enough to be content with a low average severity of injuries if the frequency rate is high. We ought to bend every effort toward reducing both measures, but especially the higher one.

Above all we ought to be careful about rationalizing if one or the other measure happens to be high. We may be working under conditions which make it difficult to lower it, but in every one of the situations described, there are companies in the record that have overcome adverse conditions and have brought both measures down, resulting in superior over-all performance; that is, a low weighted frequency rate or performance index. They are entitled to the blue ribbon award.

Foiling Friction

(From page 33)

we found a predominance of belt accidents on Monday morning.

In the old days it took a gang of 35 men several hours to start the mill after a 24-hour winter shutdown. Now it takes six men one hour to have the mill in full running order with all equipment loaded at 20 below zero.

In the old days, 10 h.p. did the work of 5 h.p. and a 2½ inch shaft was required instead of 1½ inch. It took 100 per cent more starting load in the winter time; now it takes 20 per cent more. Now it is no longer necessary to change from "summer" to "winter" motors. A mill loaded with 100 tons of ore throughout the flow can now be started in 11 minutes in the summer.

All this has come to pass by the elimination of high friction sleeve-type bearings in favor of anti-friction bearings and the adoption of modern engineered greases and oils in place of the universal use of yellow cup grease. Likewise, we have no more Monday morning belt accidents.

Pre-Planned for Safety

(From page 20)

air per minute. There is a complete change of air every ten minutes.

While the units in the various departments have been designed to supply varying amounts of outside and recirculated air in cold weather, all are equipped to operate entirely with outside air, which reduces the temperature in warm weather. These facilities are supplemented in the summer by an evaporative cooling system with pipes from which cool water is sprayed across 11 acres of roof to help maintain comfortable temperatures.

Dust, heat and fumes created by metalworking and processing operations are removed at their source by exhaust ventilation. In these departments it has been possible to maintain good atmospheric conditions without isolating the operations in separate rooms.

Complete air conditioning has been installed in the office and in some sections of the manufacturing building. The stencil and ink manufacturing departments are enclosed by permanent partitions. Here the need for process and quality control requires full application of the controlled conditions principles which have been adopted in the offices and laboratories. By maintaining control of light and atmospheric conditions large areas of interior space can be used without sacrificing good working conditions.

The two sides and rear of the plant are enclosed with poured concrete sill walls, a continuous band of projected steel sash, and corrugated asbestos above the sash on three sides. Glare-reducing glass is used in these window areas.

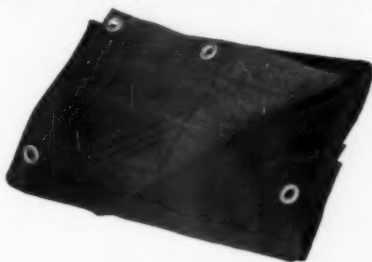
The roof deck is poured gypsum with glass fiber insulation and built-up waterproofing.

"Fire - Chief" Finished WELDING CURTAINS

to confine the welding operation to a given area

SALVAGE COVERS

Used to protect machinery, and other equipment from water, dust and snow.



FLAMEPROOF CANVAS

impregnated with Hooper's Fire Chief treatment under their patent which carries the Underwriters' Laboratory seal.

A. Smith & Son Inc.

Established Eighteen Hundred Sixty-Seven

MANUFACTURERS OF REEVES STRETCHER

Ridge Ave. at Green

Philadelphia 23

"If It's Made of Canvas, We Make It"

GET RID OF DANGEROUS



NEO-CORD OIL AND GREASE RESISTANT COUNTER-TRED SAFETY MATTING

Resists animal fats, chemicals, hot soapy water, polishes, lactic acids, gasoline, kerosene.

Comfortable underfoot. Retards fatigue. Reduces breakage.

Combines Gro-Cord, exclusive cord-on-end construction with Dupont Neoprene to provide the world's greatest non-slip material. The cords are the identical high grade native long staple sea island cotton such as employed in the manufacture of finest tires. Ridges permit drainage and aeration. 23" wide. Any length in 12" multiples.

AMERICAN MAT CORPORATION

"America's Largest Matting Specialists"

1724 Adams St., Toledo 2, Ohio

IN CANADA

Office: American Mat Corporation, Ltd., Canada Trust Building, Windsor, Ontario.

Factory: West Lorne, Ontario.

() Please send prices on Neo-Cord Counter-Tred Safety Matting. Please send information on () Ameriflex Flexible Wood Link Matting; () Tru-Tred Tire Fabric Matting; () American Counter-Tred Safety Matting; () Ray-Rug Colored Rubber Link Matting; () Tile-Top

Sponge Matting; () Traffic-Tred Matting; () Do-All All-Purpose

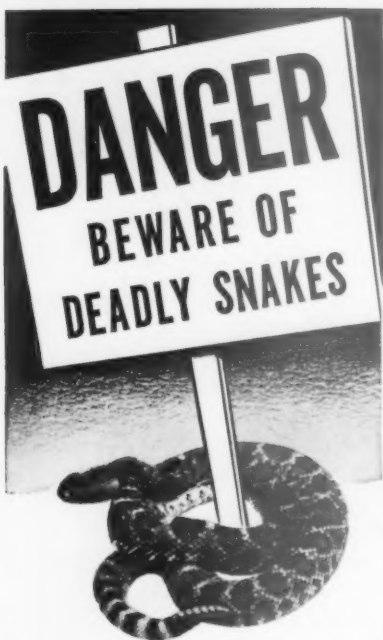
Rubber and Cord Matting; () Brer-Tred Vinyl Plastic Link Matting.

Name

Firm

Address

City and State



Even the rattler's warning frequently is heard too late. Three other deadly reptiles common in the U. S.—the moccasin, the copperhead and the coral snake—give no warning at all! Workmen located in timber, swamp lands or rough country need protection against this lurking danger!



**WRITE FOR
INFORMATION
AND PRICES**

A handy kit with all the materials for instant, safe treatment of snake bites. Powerful suction pump with two adaptors—operates with one hand. Real surgical lancet, tourniquet, antiseptic, adhesive compress, shock treatment. Full directions on inside cover of kit. Fits pocket on standard unit kits.

B. F. McDONALD CO.
Manufacturers & Distributors
of Industrial Safety
Equipment

5112 South Hoover Street
Los Angeles 37, California
Other Offices in San Francisco & Houston,

The concrete floors have been treated with a special hardener. In the aisles and certain other areas the surface has been treated with a floor sealer which provides a serviceable anti-slip finish. Daily sweeping with wide dust mops and periodic washing with floor machines keeps them clean with a minimum of effort. Oil absorbents are used freely where there is occasional spillage, as around automatic screw machines.

In the departments where there is possibility of solvent vapors being present, floors are conductive and non-sparking. A grid-work of ground wires connected to all machines and equipment effectively controls any stray electrical currents or static electricity which might develop. In these locations all electrical equipment—even the clock—is of the explosion-proof Group I Class D type.

Dominating the plant scene is the welded spherical water tower which serves the fire protection systems. Containing 100,000 gallons backed by Lake Michigan's unfailing supply, it is 128 feet high and built to withstand wind velocities of 100 miles per hour.

All storage areas and all manufacturing departments where combustible materials are processed and stored are protected by automatic sprinklers. Cooperating with the company's fire-fighting organization is the Niles Fire Department, which is rated as a highly efficient volunteer organization.

One of the things about the plant which impresses visitors is the distinctive color scheme. To provide more pleasant working conditions and reduce fatigue, "warm light" industrial colors have been used throughout the factory area. The series, which consists of four variations of cocoa, is used on walls, machinery, structural steel, pipes and conduits, and lighting fixtures. Gray is used as a neutral accent color, yellow for control devices, moving and safety equipment, and fire red is reserved for fire-fighting apparatus.

Contrasting with the warm hues of the production areas is the restful light green of the locker and wash rooms.

Locker and wash-up facilities



STOPS FALLS!



**CONTAINS
NO WAX...**

**OUTWEARS WAX
2 to 1**

At last—a resilient, long-wearing coating of good gloss and maximum slip resistance. NO-SLIP, a new but thoroughly tested floor coating, provides a safe, lustrous surface. It is easy to apply, can be maintained inexpensively. (Co-efficient of friction rating 0.90 on linoleum and asphalt tile . . . by Underwriters' Laboratories Re-examination Service.)

Write for free demonstration kit and literature.

TIME-SAVING SPECIALTIES
706 New York Life Building, Dept. 6
MINNEAPOLIS, MINNESOTA

have been located on ground floor and mezzanine levels to conveniently serve all work areas. In the Ink Department an automatic washing machine and dryer have been provided where the employees in this department may wash their work clothes during working hours.

The cafeteria, an attractive room with green and yellow walls, stainless steel equipment and decorative wallpaper, is served by an immaculate kitchen with a vast amount of refrigeration and storage space and dishwashing machines. The cafeteria seats 284 people and serves more than 3,800 meals a week.

Another much appreciated facility, not practicable for industries in congested city areas, is ample parking space. Current capacity of the parking area is 450 cars for the 1,000 employees.

Mr. and Mrs. Safety

(From page 38)

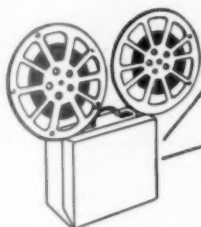
their congressman, Representative Paul W. Shafer, who told them about happenings in Washington and posed for a picture.

At noon, Carl and Betty were guests at a labor department luncheon. In the absence from the city of Secretary of Labor Maurice Tobin, William L. Connolly, director of the Bureau of Labor Standards, was host. Returning to Capitol Hill, Representative Shafer introduced them to Senator Homer Ferguson.

Senator Ferguson accompanied them to the gallery of the Senate and pointed out notable figures. Much to their disappointment, Vice-President Barkely was not presiding.

The following telegram was sent by Secretary Tobin to the ceremonies at Battle Creek at which "Mr. Safety" was selected: "Employees and management of your concern should be justly proud of having completed more than 2,000,000 man-hours of work without a disabling injury. Surely the team-work and collective effort will carry you to even greater heights of achievement. You should all feel that you are making a very real contribution to our national effort to reduce injuries and human suffering."

THE NEW Von Duprin MOVIE



16 mm., 20-minute, black and white, with sound

Tells the story of the vital need for ample exits, adequately protected. "SAFE EXIT" is a serious contribution to the cause of safety, with very little about Von Duprin panic devices in it. It is supplied without rental charge for showings to safety committees and councils, inspector's meetings, training classes, etc. For booking request blanks, write



VISUAL AIDS DEPARTMENT
VON DUPRIN DIVISION
VONNEGUT HARDWARE CO., INDIANAPOLIS 9, INDIANA



Dunking Stations!

ANSWER YOUR PLANT
SMOKING PROBLEMS



Unit No. 2 for mounting on walls, columns and posts.

Unit No. 1, (not illustrated) same as unit No. 2 but with upright and base for use on floors, aisles, etc.

Send for illustrated folder which gives complete details.

**Standard Industrial
Products Co.**

1710 Main St.

Peoria, Illinois

**SPEED
PRODUCTION
SAVE THE HANDS!**



**IPCO PUNCH
PRESS FEEDER**

A speed-up tool for lifting, feeding and positioning blanks of metal and other materials in stamping machines and die presses without inserting the hands or fingers within the danger zone.

Used for separating sheets, transferring from piles or stacks . . . many other uses on all non-porous materials.



Safety Equipment for all Industries

INDUSTRIAL PRODUCTS COMPANY

2850 N. FOURTH STREET • PHILADELPHIA 33 PA.

have you
**CHECKED
YOUR
TOWEL
COSTS
LATELY**



**Sani-Dri
SAVES
TOWEL AND
MAINTENANCE
COSTS**

**GIVES YOU CLEANER,
MORE SANITARY WASHROOMS**

Compare present day towel costs with modern Sani-Dri electric hand dryers. You'll discover amazing savings over towels . . . and the time and trouble of servicing empty towel cabinets and waste containers is eliminated completely! New, faster-drying Sani-Dri provides automatic 24-hour hand or face drying service with a stream of hot air . . . the most sanitary method known! New heating element and faster-flow nozzle dries hands or face faster than ever before!

SAVES 85% OF WASHROOM COSTS

Sani-Dri quickly pays for itself out of savings! No buying or stacking of towels. No unsanitary litter to clean up . . . no paper-clogged pipes . . . no fire hazard . . . no servicing of towel cabinets. Sani-Dri has carried the Underwriter's Seal of Approval for 18 years. It is the only electric dryer that has proven its dependability in over 22 years' use!

Distributors in Principal Cities
THE CHICAGO HARDWARE FOUNDRY CO.
"Dependable Since 1897"
1050 Commonwealth Avenue
NORTH CHICAGO, ILLINOIS



The Chicago Hardware Foundry Co.
1050 Commonwealth Avenue
North Chicago, Illinois

GENTLEMEN: Please send literature on the following:

☐ Brochure 1082 on new, faster-drying Sani-Dri Electric Hand and Face Dryer

NAME _____
ADDRESS _____
CITY _____ STATE _____

Dollars for Nickels

(From page 27)

in the city government has participated in a 20-hour safety training conference with the exception of a few officers in the Police Department where a training course is now in process.

2. Safety coordinators have been appointed in all departments.

3. Safety committees are functioning in all of the larger departments.

For instance, there are three committees in the Street Department and twelve committees in the Fire Department.

It is a revelation to attend a meeting of one of these safety committees and observe the treatment of safety problems. Ninety-five per cent of our safety work is performed by these sincere, hard-working committees.

4. The city employed the services of the Business & Industrial Staff, a consulting firm, to perform our technical safety work.

5. Oakland has provided protective safety equipment and devices for individual employees and for shops and working areas. How rapidly these safety devices pay off! Several serious injuries were prevented the first few weeks.

6. First aid equipment has been installed for every work activity area and city trucks.

7. Safety bulletin boards are being installed in all work areas. Accident prevention posters will be changed on these boards every two weeks.

How about the dollars that the city is buying with nickels? For every nickel spent on the safety program in 1949, the city saved one dollar in accident costs. Our injury frequency rate has dropped 27 per cent in one year. This represents a savings on disabling injury costs of \$100,000 while only \$5,000 has been spent on accident prevention.

Every department of Oakland municipal government showed a decrease in accident frequency during 1949 in comparison with 1948. In 1948 the frequency rate, with 6,764,084 man-hours was 48.1.

**SAFETY . . .
AT EVERY TURN**



**WITH THIS NEW
ELECTRO-LOCK
SAFETY SHIELD**

Another Junkin device that actually ENFORCES safety, because grinder can't operate until shield is in position. Write today for our new booklet which gives full details of this latest protection against the dangers of grinder operation.



JUNKIN SAFETY APPLIANCE CO., INC.
530 W. HILL ST. LOUISVILLE, KENTUCKY

NON-SKID SAFETY

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The Triple Safety Heel was designed to minimize foot slipping accidents. It has a tread design of circular ribs with connecting cross bars that causes suction. In walking it gives road contact of one inch, where ordinary heels contact only on the edge. Laboratory tests show Triple Safety Heel has 97% road contact and traction.

Design permits rubber to flex, absorbing body shocks, minimizing fatigue. Triple Safety Heels will give longer wear and reduce slipping accidents on wet or slippery floors.

WRITE FOR CIRCULAR

TRIPLE SAFETY HEEL CO.
2149 Leland Avenue Chicago 25, Ill.

3245 E. Woodbridge, Detroit 7, Mich.



STANDARD SIGNS, INC.
3190 E. 65TH ST. CLEVELAND 4, O.

A black and white photograph of a spiral-bound notebook. The notebook is open, showing its cover and the spiral binding. The cover has a textured, possibly woven or knitted, appearance. The notebook is lying flat, and the spiral binding is visible on the left side. The image is set against a plain white background.



for

SN

trations were kept around 100 p.p.m.

Sulfur Dioxide

DILUTION AND ITS PART IN EFFECTIVE AIR POLLUTION CONTROL. By Geo. R. Hill and Moyer D. Thomas. Industrial Medicine and Surgery, 19:121-125 (March, 1950).

The major material considered in this paper is the dilution of sulfur dioxide effluent from smelter stacks. This is the dilution problem which has been studied most intensively because of the

severe poisoning of vegetation by sulfur dioxide and the consequent bitter battle between the smelters and the farmers and livestock men in the same areas.

Some of the original studies were started in 1914 by the American Smelting and Refinery Company. They involved a study of the concentration of sulfur dioxide occurring at ground level at various distances from the stack of the Murray Utah Smelter and a series of fumigation experiments

on various plants. These early studies established the fact that stack height makes a difference in the concentration of sulfur dioxide and also that the temperature of the effluent gas has a considerable influence. It was also established that there was a considerable variation in the sensitivity of plants and such difference in the sensitivity of the same plants in varying conditions as to soil moisture, humidity and light intensity.

As a result of these studies the stack at the Murray Refinery was increased to 300 feet and then to 455 feet. This resulted in an improvement but not enough in occasions of dead calms for several hours. Experiments were made with blowing air up the stack from a fan and by heating the stack with boiler gases and finally with a coil burner for heating the intake air at the bottom of the stack. The combination of a high stack and the stack heater eliminated the difficulty at the Murray Refinery.

The Better Way TO CLEAN EYE PROTECTION IS THE **K-LENS-M** WAY

Industries report that eye injuries have decreased
—with considerable savings of time and effort.
To increase the usefulness of your safety eyewear
use

THE BEST IN LENS CLEANING EQUIPMENT

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Remember **K-LENS-M** ... CLEAN BETTER AND LEAVE NO FILM!



Revolutionary NEW DESIGN oversize welding goggles



These No. 610 Oversize Welding Goggles are designed to fit over prescription glasses. The one piece frame construction permits putting on or taking off with one hand. The two center clamps permit adjusting to fit any face. They are perfectly balanced, weigh only 2½ ounces, have rolled edges for comfort, and can be fitted with any 50 m/m lenses.

The frame is of rugged black plastic, thoroughly ventilated, light proof.

The same style goggle is also available as No. 611 Oversize Grinding Goggles and No. 612 Oversize Clear Plastic Industrial Goggles.

Write for our No. 610 folders which illustrates and describes these goggles in detail.

sellstrom

Manufacturing Co.

Offering more than 500 Eye and
Face Safeguards

622 North Aberdeen Street, Chicago 22, Ill.

This established the value of a tall stack for a flat country and a similar series of studies at Tacoma, Washington with a stack 300 feet high, later replaced by one 573 feet high, established the fact that similar dilution can be obtained with hilly country and with large bodies of water adjacent to the stack.

In addition to the practical studies there have been a number of theoretical studies seeking to establish a mathematical equation for the ground level concentration of gas downwind from a stack. The calculated concentrations for sulfur dioxide according to the methods of Bosanquet and Pearson and of Sutton have been shown to fall remarkably close to the concentrations determined in the field at a number of smelters. The determined figures generally fall between the calculated values by the two methods.

The Air Hygiene Foundation of America made an intensive study of sulfur dioxide concentration in the air of cities in 1937 and 1938. Analyses were made in Pittsburgh, St. Louis, Detroit, Philadelphia and Washington, D. C., with occasional spot samples from Chicago, Cleveland, Birmingham and some other industrial locations. Analyses were made by a method specific for SO_2 and by conductivity. The conductivity values were very close to those of the

specific method, indicating that SO_2 was the only ionizing material present in any great quantity. The highest concentrations were found at St. Louis. In the 30-mile radius in a period from October, 1936 to April, 1937 the average SO_2 concentration was .147 p.p.m. with a maximum of 2.266 p.p.m. of SO_2 .

Announce Course in Industrial Hygiene

An inservice training course in industrial hygiene and human relations for safety personnel has been announced by the University of Michigan School of Public Health. Sessions will be held at the School of Public Health Building, Ann Arbor, June 19, 20 and 21.

Cooperating with the faculty of the university in planning the course are several prominent industrial physicians and safety engineers. The course will open with a session on human relations and subsequent meetings will cover sanitation, plant layout, and specific industrial health problems.

Details about the course may be obtained from H. E. Miller, School of Public Health, University of Michigan, Ann Arbor, Mich.

This course is one of a series of inservice non-credit courses dealing with industrial and public health. A previous course,

"IT'S A SNAP" with BUHRKE'S new SCOTCH SNAP



A revolutionary multiple purpose snap for hoisting material to the pole top. Makes possible an endless hand line, eliminating the tying of knots. Designed so it can not catch on service wires while raising or lowering. Tested to 2500 lbs. between eyes and 1000 lbs. on each hook and upper eye. Write for details!

R. H. Buhrke Co.
4701 W. Grand Ave.
Chicago 39, Ill.



Reflective material, known as "scotchlite," used for lettering on freight cars. As an additional safety feature, a border of small reflecting circles is used along the lower side of each car in direct line with approaching headlights.



Eliminate danger zones overnight with one quick, low cost application of SURE-FOOT, the easy and inexpensive way to provide maximum safety for both foot and light wheeled traffic. SURE-FOOT'S positive traction remains non-slip, wet or dry, on all wood, metal and concrete surfaces.

EASY TO APPLY

SURE-FOOT spreads like ordinary paint on any clean dry surface. No formulas to mix and no special tools or skilled workmen required in its easy application.

ECONOMICAL

Low in initial cost, SURE-FOOT offers excellent one coat coverage... costs less than 10c per sq. ft. installed.

LONG LIFE

Tough, traffic resistant carbide crystals form the abrasive content in SURE-FOOT, assuring a non-slip surface at all times. SURE-FOOT is fire retardant and prevents surface deterioration.

Write today..

to Dept. B for free bulletin showing how you can eliminate slippery conditions and improve plant efficiency.



Frost PAINT AND OIL CORPORATION
MINNEAPOLIS 13, MINNESOTA

dealing with the problems of air pollution, had a registration of 246, with attendance from 25 states and Canada.

Handling Patients

(From page 21)

have to go back to work; you can go home if you want to, but the nature of this injury is such that it is perfectly safe for you to return to work if you want to. We'll let you go back on the job if you'd like to keep going." Then on the release or back to work order, we write for the patient's benefit, "Allowed to continue work." How much better that is than to take a dominant attitude compelling the man to return to work because you ordered it, or even on his back to work order to say, "Ordered back to work."

The term "light work" has become a bugbear to foremen and supervisors. They suspect the employees of stalling on the job or seeking special privileges and using their injuries to get soft jobs. For this reason, when we are ready to send a man back to



Consult DRACCO ENGINEERS

about DUST and FUME CONTROL



✓ Built for heavy duty

For your safety campaign against dust hazards, Hoffman vacuum cleaning equipment is built for continuous heavy duty service. Sturdy construction and efficient design assure fast, thorough cleaning at low cost.

✓ Larger dust capacity

Higher vacuum and greater dust capacity in Hoffman equipment. You can do more cleaning for longer periods. Exclusive features for disposal of collected dust speed up cleaning operations.

✓ Low cost maintenance

With normal lubrication, hundreds of plants have established amazing maintenance-free records with Hoffman equipment. No internal mechanical wearing parts in the Hoffman exhaustor. Bearing design is outboard mounted for quick, easy change.

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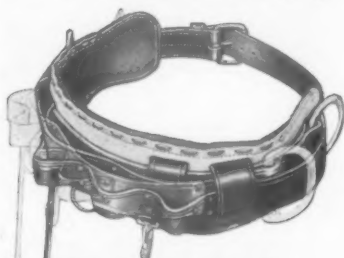
Get proof! Names of plants in your industry who solved dust problems with Hoffman portable or stationary equipment, by writing now.

WRITE FOR BULLETIN A-713 AND A FREE SURVEY

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CANADIAN PLANT: NEWMARKET, ONT.

A Full 5 Inches of Body Movement With Ease and Safety



BASHLIN'S New Shifting Tool Dee Safety Belt

Next to Safety in the experienced lineman's book, Accessibility of Tools is of first importance in selecting a Safety Belt. This new Bashlin Safety Belt is designed with sliding tool loops . . . keeps tools within easy reach. And the built-in extra safety factor saves the Safety Strap from wear. It's Safe . . . Practical . . . Comfortable . . . and you know it's right. It's Bashlin.

Another First

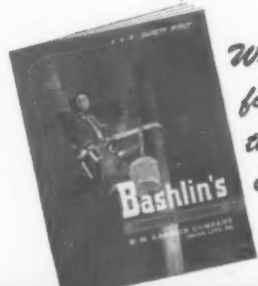
One piece aluminum sleeve adjusts from 15" to 18" in multiples of 1/4". Locked in place with standard steel screws.

Comfort on the job, lightness and safety combine in Bashlin's adjustable Climber with removable gaff . . . Forged of aluminum alloy, the Bashlin Climber is lighter than conventional climbers and the Same Strength as Equivalent Steel. It's form fitting and has all the original Bashlin features.

No.
BD 14

Removable gaff forged from alloy steel, features triple locking device with standard self-locking tested steel screws

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for
this
catalog



W.M. BASHLIN
COMPANY

GROVE CITY 3, PA.

light work we tell him to talk the situation over with his boss and see if he has some modified work that the injured employee can do. When the man comes back or his boss telephones us about the kind of work he can do, we release him to resume modified work. The boss is satisfied, the patient is happy, and so am I under these circumstances. The term "modified work" seems to be a much better phrase than light work in our experience.

The time when the treatment is to be terminated also calls for grace, tact and artful handling. The patient wonders what you are going to do with him or what your attitude is going to be toward him if he has a permanent injury with specific loss or disfigurement.

In the first place, we don't believe treatment should be terminated exactly at the time you send him back to work. We prefer to carry over the treatment period a week or two until the patient has proved to himself his ability to renew work. When a man is released to go back to work we frequently say, "Will you drop in in a week or ten days and let me know how you are getting along?" If dressings are necessary, this gives us the opportunity of seeing the patient after he goes back to work.

In cases of serious injuries or disfigurement, we tell the patient when he resumes work that we know there is going to be some permanent injury, and we also know there is going to be some further improvement, so we will call him back at a later time, say sometime between six months and a year after his injury. At that time we will give him an appraisal examination and report his permanent disability. Some patients try to hurry their disability settlements, seeking such settlements while the injured member still demonstrates considerable disability. If one can reasonably expect any further improvement, then the condition is not permanent, and the permanent disability evaluation should be deferred.

There is no problem of human nature which is insoluble. — Dr. Ralph J. Bunche.

"WOVEN- Gards"



BETTER HAND PROTECTION at amazing low cost

"Woven-Gards" are hand protectors, mitts, pads and sleeves made of a new safety material. They provide flexibility, comfort, resistance to abrasion and cutting far beyond that of anything used before. They are extremely oil-absorbent and do an excellent job when handling oily, slippery sheets. The porous weave makes them one of the finest protectors for handling lower temperatures. Enthusiastic users say they have never seen values like "Woven-Gards." Excellent protection at lowest cost. Send now for descriptive folder and prices.

Industrial Gloves Co.

1725 Garfield St., Danville, Ill.
(In Canada: Safety Supply Co., Toronto)





NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Car Shaker

American Engineering Co., Aramingo Ave. and Cumberland St., Philadelphia 25, announces the production of a new Lo-Hed car shaker. It is offered in combination with a Lo-Hed 5-ton, twin-hook hoist and controls or with a single hook, 5-ton hoist and controls. It is also available separately for use with existing hoisting equipment. The shaker provides a fast, easy way to unload coal, ores, sand, cinders, rock, coke, slag, wood chips, limestone or any other loose materials from open hopper-bottom type cars.

Double safety is provided with interlocking controls. The hoist is equipped with a slack-line switch. The shaker cannot be operated until the shaker is in position; conversely, the motor trolley cannot be started when the shaker is in operation. The double safety feature is available with all motorized trolley hoists furnished with the car shaker combination. When a hand-gear trolley hoist or bolt suspension type is selected, interlocking trolley control is omitted.

Weatherproof Column Light

A new weatherproof column light has been developed by Stone Manufacturing Co., 489 Henry St., Elizabeth, N. J. The new area light has a heavy steel porcelain-enameled reflector, 20½ inches in diameter, with a deep overhanging skirt to cut glare to a minimum. All wiring is fully enclosed inside a double-yoke hollow-arm construction that supports a built-in weatherproof cast aluminum splice box to which supplementary spots or floods can be added at any time.



For general area illumination over pump islands, railroad platforms, pedestrian safety islands, walks and driveways, the unit is mounted on poles or pipes. Where supplementary lighting is desired in buildings, factory yards, car lots, etc., additional spotlights or floodlights can be quickly mounted directly to the dome. No wiring troughs or additional accessories are needed, as the dome splice box is threaded to take up to five cluster lights and has a removable cast aluminum cover that simplifies and helps speed up wiring and installation.

The Stonco R1 column light, as the new

unit is designated, is designed for normal base-up burning of 300 and 500-watt standard line lamps or for bi-post lamps in 500, 750 and 1000-watt sizes. Supplementary cluster lights utilize either the 150-watt PAR-38 spot or flood, or the 300 and 500-watt sealed beam weatherproof reflector lamps.

Jeep Fire Truck

A jeep fire truck is now on the market. This unit, developed by Ansul Chemical Co., Marinette, Wis., carries 340 pounds of dry chemical. It is capable of extinguishing large area flammable liquids, gas and electrical fires. Named the Ansul Model 340-J, the jeep fire truck will be available to manufacturing and chemical plants, the petroleum industry, airports, electric and gas utilities and other installations where fire hazards are dispersed over wide areas. The truck is also designed to aid building contractors, municipal fire chiefs, and forest rangers.



A 300-pound tank of dry chemical is provided for combating large fires. On the Model 340-J2, two 50 foot hose lines are attached to the dry chemical tank. The hoses may be operated together or singly. They are coiled in steel cabinets for protection against weather. Two Ansul 20 extinguishers mounted on the hood are available for small fires. The Model 340-J1 features one hose line.

There are seats for the driver and a passenger, but two more men may be carried if necessary. The truck's curb weight is 3200 pounds. Additional fire fighting or rescue equipment may be added.

The dry chemical equipment is mounted on a standard Universal Jeep (four wheel drive) Model CJ-3A. The vehicle has six speeds forward, two in reverse. Top speed is 60 miles an hour. Standard tire size is 600x16 4-ply with non-directional tread. Turning radius is 18 feet. Over-all width is 67 inches, height 69 inches and length 127 inches. Wheelbase is 80 inches, tread 48½ inches and minimum road clearance 8 3/32 inches. All controls for operating the fire equipment may be worked from the driver's seat. The dry chemical tank may be pressurized on way to the fire.

Magnetic Switch

A magnetic switch has been designed by Nu-Way Signal Co., 4152 W. Division St.,

Chicago 51, Ill., for many signalling and operating functions in industrial plants. A truck or car passing over it in the plant driveway energizes it to ring a bell or sound a chime, summoning attendant to open the door. It can be used as a warning signal to pedestrians crossing drives. Snow, ice, or water will not affect its operation.

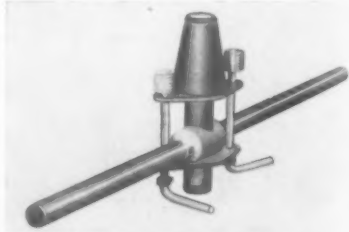
Door manufacturers use it as a trigger to open garage doors automatically while driver sits at the wheel of his truck or car. One or more switches can be used in the system.

Leather Hand Pad

The Safti-Mitt handpad designed by General Scientific Equipment Co., 27th & Huntingdon Sts., Philadelphia 32, is adjustable to any size and the new snap-fastened strap keeps pad on and makes removal easy. The pads are made of horsehide for long wear.

Tank Car Stopper

Industrial Products Co., 2850 N. 4th St., Philadelphia 33, announces a new stopper and unloading device for emergency use on tank cars containing petroleum products and many other liquids. With the stopper the wild flow may be stopped as soon as the device is in place. Contents may be unloaded through the device if desired, thereby eliminating the necessity of unloading from overhead.



The stopper is manufactured of neoprene, magnesium, brass and aluminum. Height 16¼ inches. Length, including handles, 60 inches. Weight ten pounds.

Cover Plate

A new, clear plastic cover plate to protect welding plates from damage is announced by American Optical Co., Southbridge, Mass. These plates manufactured from methyl methacrylate, the material used for bombers' noses and navigators' turrets during the war, meet the optical requirements of the Federal Bureau of Standards.

The plates do not pit as readily from welding spatter; are .060 inches thick assuring adequate impact resistance and will outlast ordinary glass cover plates. Two sizes are available: standard, 2" x 4¼" and a slightly smaller size, 2" x 4⅛", provided on special order.

NEW SAFETY EQUIPMENT FOR INDUSTRY



Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

Self-propelled Scrubber-Vac

Finnell System, Inc., East St., Elkhart, Ind., has announced a self-propelled combination scrubber-vac No. 418P, for small-area building with floor areas ranging from 2,000 to 15,000 square feet. The machine has an 18 inch brush ring.



Like Finnell's larger combination machines, the new unit applies the cleanser, scrubs, rinses, and picks up in a single operation. The machine handles both wet and dry work and can be either leased or purchased.

Safety Awards

Williams Jewelry & Manufacturing Co., 10 S. Wabash Ave., Chicago 3, has developed a new stock safety plaque, $7\frac{3}{4}$ " x $7\frac{1}{4}$ " which includes a two-tone jeweler's bronze etching with the "Green Cross for Safety" in color mounted on a walnut



shield. The new award is particularly useful for promoting departmental safety records.

New Cleaner Sanitizer

Sugar Beet Products Co., Saginaw, Mich., announces the development of a new cleaner-sanitizer, Formula SBS-50. The product eliminates the mixing of disinfectants and detergents for use on toilets, sinks, showers, washroom floors, etc.

Manufacturer states the product is guaranteed to reduce bacterial counts of casual contaminants to safe levels as judged by public health requirements.

Tool Belt

Mathias Klein & Sons, 3200 Belmont Ave., Chicago 18, has announced the addition of the Klein-Line tool belt with a sliding trace to the company's line of equipment for linemen. The belt has a full floating, sliding trace of "Klein-Kord" which permits free movement in either direction. This sliding trace eliminates much of the chafing experienced with conventional belts, and also reduces wear on



the safety strap. An additional safety factor permits visual inspection of the sliding trace throughout its entire length. The buckle and Dee rings are tested to 1500 pounds.

The company also announces the addition of adjustable climbers. These climbers are adjustable to 15, $15\frac{1}{2}$, 16, $16\frac{1}{2}$, 17, $17\frac{1}{2}$ or 18 inches, in the same patterns as the standard line of climbers.

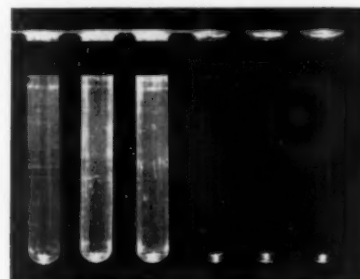


These adjustable climbers eliminate the necessity of stocking a wide variety of sizes. Linemen will find these climbers easily adjustable to compensate for any changes in thickness of footwear as caused by the addition of overshoes in winter. The company states that its standard line of non-adjustable climbers will continue to be available.

Glass Washing Detergent

The six test tubes shown above were immersed for 18 hours at 210°F in 0.30 per cent solutions of glass washing detergents. The trio of badly etched tubes at the left were exposed to a standard detergent solution; the new-looking tubes at the right were immersed in Wyandotte Dural H—an inhibited detergent for safely washing laboratory glassware by hand.

This new Wyandotte Chemicals Corporation cleaning product washes quickly and thoroughly even in hard water, produces little or no etching; dissolving laboratory glassware at rates from 2 to 33 times slower than standard detergents. A companion product, Wyandotte Dural M, has been originated for the machine washing of laboratory glassware.

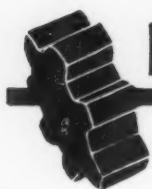


Dural H penetrates rapidly, protects glassware and workers' hands, and reduces etching to a minimum as shown by the photograph. The same advantages are gained with Dural M for machine washing of laboratory glassware. Both products are suitable for washing culture and test tubes, Petri dishes, Erlenmeyer flasks, centrifuge tubes and laboratory glassware of all kinds. Address the Wyandotte Chemicals Corp., Wyandotte, Mich., for further information.

Elevator Backstop

A simplified backstop which automatically prevents the "backing up" or "running away" of inclined conveyors, bucket elevators and similar equipment has just been produced by The American Pulley Co., 4200 Wissahickon Ave., Philadelphia 29, as a ready-made device for immediate installation. It is the first standard stock backstop taper-bushed to shaft size. It provides an automatic safety device.

The backstop is a ratchet-type device which automatically operates when power interruption, overload cutout, or failure of the prime mover occurs. It can be mounted in any position on the head shafts of conveyors or elevators. As long as the shaft is turning in the proper direction, the pawl is entirely disengaged from the ratchet, so that there is no drag, vibration or noise. Immediately upon reversal, the pawl automatically engages the ratchet, locks the



NEW SAFETY EQUIPMENT FOR INDUSTRY

shaft in place and holds it in position until forward power is again applied, at which time the pawl pulls out of the ratchet teeth. The entire operation is smooth and positive, with no shock transmitted to the driven machine.

Carbon Monoxide Recorder

A refinement of the original M.S.A. Carbon Monoxide Recorder has been announced by the Mine Safety Appliances Co., Pittsburgh, Pa. Retaining all the valuable features of the former model, the improved instrument embodies a new perfection of design and performance. The new recorder is a compact, easy-to-read instrument providing precise and continuous measurement of very low concentrations of carbon monoxide in air. It is composed of a drier, analyzer and potentiometer recorder, and can be calibrated to a sensitivity or accuracy which is about ten times greater than that of most refined analytical determination. Sampling is implemented by a continuously-operating



motor-driven pump which forces the air sample through the drier and then through the analyzer where any carbon monoxide present is oxidized, and the percentage registered on the recording potentiometer.

The potentiometer can be equipped with as many as six sets of discs and contacts to open and close external circuits at predetermined concentrations of carbon monoxide, thus operating suitable warning signals, ventilation controls and proportioning valves. The potentiometer is especially equipped to compensate for variation in calibration and is suitable for either wall or panel mounting.

The new unit is particularly designed for use in vehicular tunnels and garages for recording amounts of carbon monoxide produced by motor vehicle exhausts; for testing gas-burning appliances to eliminate carbon monoxide in combustion-products; for research work in combustion studies; in testing various gases for possible carbon monoxide contamination and for control practices in manufacturing processes where carbon monoxide is involved.

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Electronic Towel

High-speed drying and simultaneous sanitizing of hands by ultra-violet, is accomplished by the new Steri-Dri electronic towel developed by Electronic Towel Sales Co., Inc., 545 Fifth Ave., New York 17. Completely electronic in operation, the new machine is an innovation in modern efficiency and multiple service equipment.



Only 23 inches wide, 18 inches high and 11 inches deep, the electronic towel mounts easily on any wall, without structural changes or special wiring. No physical contact is required to operate the machine which utilizes no levers, pedals, springs or buttons. The towel goes into operation the moment hands are placed in the drying aperture beneath the machine, thereby interrupting the beam of an electric-eye, which activates infra-red heating, an ultra-violet sanitizing lamp and an impeller-type blower, which forces a concentrated stream of warm air over the hands, producing quick-drying by evaporation. Simultaneously the machine's ozonating action destroys washroom odors. When the hands are removed the machine shuts off automatically. Tamper-proof key-type switches make it possible for the ozonator to remain in operation even when the machine itself is shut off. All parts are fully encased and cannot come in contact with the hands. The unit has the Underwriters' approval.

Bosun's Chair

Painting, repairs, and inspection of elevated work are facilitated by the new foot-operated bosun's chair manufactured by Safway Steel Products, Inc., 6234 W. State St., Milwaukee 13, Wis.

The chair consists of a rigid tubular steel cage moved by a winch. Sitting on a comfortable bicycle-type saddle having two coil springs, the worker operates standard bicycle pedals to raise or lower the hoist. The seat height is adjustable to fit the operator's size. It is also possible to work from a standing position. Power is transmitted from the pedal crank to the winch drum by means of a roller chain, running on sprocket wheels which are arranged in a ratio that permits operation with minimum effort.

Movement of the hoist in either direction may be as fast as 25 feet per minute, under the complete control of the oper-

ator. Use of foot power leaves the worker's hands free for other duties. The chair has a rated capacity of 625 pounds. It is



furnished complete with 150 feet of $\frac{1}{4}$ inch - 6x19 plow steel wire rope. Weighing only 75 pounds, the unit can be handled by one man, and is rigged quickly for work in any location. The cable runs over pulleys at the top and back of the unit, arranged so that the cage will always hang in an upright position.

The cage is of tubular steel construction, with welded joints. Waist-high guard rails with center support posts are provided. A gate at the front permits easy access. Tubular skids are located under the cage where it rests on the ground. Two hard rubber rollers on the front of the unit prevent marring of working surfaces and make it easier to raise or lower the chair. The rollers can be tilted to fit cylindrical surfaces as found in stacks, grain elevators, etc. The unit carries the approval of Underwriters' Laboratories.

Press Feeder

F. J. Littell Machine Co., 4165 N. Ravenswood Ave., Chicago, announces a new device which permits punch press operators to place small parts in position for further stamping operations without



putting hands in the danger zone. The device, known as Pres-Vac safety feeder, produces a vacuum by passing compressed air through a venturi. It is used to hand feed small parts into a press.

NEW SAFETY EQUIPMENT FOR INDUSTRY



Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

Welder's Gas Mask

To protect welders on jobs where there are hazardous gases or smokes due to product residue or vaporization, Acme Protection Equipment Co., 3037 W. Lake St., Chicago 12, has developed a full-vision gas mask, known as Pur-a-weld, that can be used interchangeably with dust and fume canister or a compressed-air supply unit.



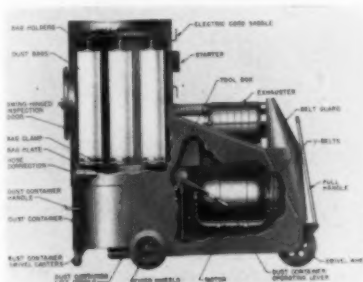
Advantages of the new type of equipment include greater vision; lenses in shades from 4 to 12; complete gas mask protection to reduce headaches, fatigue and other health hazards; easy fit and comfort; free-breathing; replaceable welding hood; interchangeable air supply to meet different conditions. The complete outfit is furnished in a compact carrying case.

Vacuum Cleaner

A new, 3 h.p., heavy-duty vacuum cleaning portable, providing 4.4 cubic feet of dust storage capacity and designed for continuous operation on heavy dust deposits, is announced by the Air Appliance Division of U. S. Hoffman Machinery Corp., 105 Fourth Ave., New York 3. Designed as the Hoffco-Vac No. 30, the new machine is claimed to offer operating efficiency, design compactness and maneuverability advantages not previously available in one-sweeper units of this size. The machine will operate one 50-foot length of 1½-inch vacuum hose. Dust container has a 4.4 cubic foot capacity. Nine dust bags provide a total bag surface area of 30 square feet.

Other features are that vacuum producer, of the multistage centrifugal type, is made of aluminum castings and is equipped with

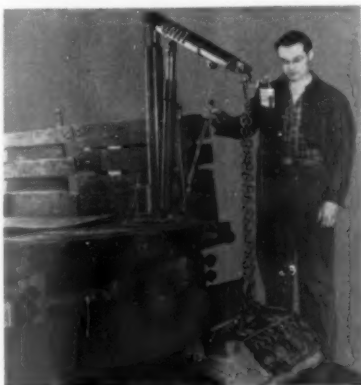
self-lubricated ball bearings, outboard mounted. Motor operates the exhaustor through a multiple V-belt drive and both are supported on rubber cushions for smooth, quiet operation.



For ease of maneuvering through plant aisles the unit has been compactly designed. It is 66 inches long, 32¼ inches wide and 63½ inches high. Two fixed wheels and one swivel wheel (all rubber-tired and ball bearing) enable the machine to be turned in its own length and facilitate handling by one man. Provision has been made for fast, easy dust disposal. Dust container is lowered or raised by action of a single lever. Three swivel casters on the container allow it to be rolled to central disposal point. Cut-away back on the container simplifies tilting to empty. Incorporated into the machine are a hose-carrying rack and a box for cleaning tools. With these, operator has all equipment within reach as he moves to new locations.

Hydraulic Hoist

A new hydraulically powered shop or truck hoist has been announced by Unit Manufacturing Co., 1229 Harmon Place, Minneapolis, Minn. This new "Utility" hoist can be used on a 3-wheel tubular



steel floor frame, or be quickly converted for use on truck beds, work benches and loading docks. It features fast hydraulic operation that will lift a ¾ ton load 77½

inches in 45 seconds and by using a short hook-up, 2000 pounds can be lifted 52 inches in 45 seconds.

A double action, hand operated hydraulic pump powers the hoist. The hydraulic cylinder features "O" ring seals on piston rods, heads and other points where static sealing is required. The hoist frame is heavy tubular steel with extra reinforcing for safety. Hoist can be easily moved from truck if required, leaving bed smooth for other operations. Extra wells can be placed in a number of trucks and hoist inter-changed as desired. When mounted on truck, the 45 inch boom will swing in a full circle. Over-all height of hoist is low enough to permit trucks to enter all doorways without bumping overhead. Mounted on shop floor frame, a special locating pin locks hoist in safe working position. Wheels on the floor frame are equipped with needle bearings that will not bind while rolling, even under maximum loads.

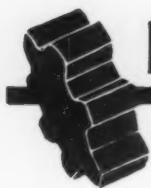
Seamless Extinguishers

As a result of production changes 2½-gallon foam, soda-acid and cartridge operated fire extinguishers of seamless drawn shell construction are now being offered at the same price as the former standard riveted shell extinguishers, according to Pyrene Manufacturing Co., 560 Belmont Ave., Newark 8, N. J. The manufacturer states these extinguishers all pass a 500 pound hydrostatic pressure test as contrasted with the 350 pound test for riveted units. These extinguishers, in addition to the added strength and longer life, are



more attractive with their highly polished alloy shell having no dome or side seams. The extinguishers also have tough transparent plastic nozzles which are resistant to damage or distortion and make for quick visual inspection to determine whether nozzle openings are clean and unobstructed.

The cartridge operated extinguishers now having this new construction are of both the plain water and the anti-freeze solution types. The extinguishers are inspected and labeled by Underwriters' Laboratories and approved by Factory Mutual Engineering Division.



NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Safety Shoes

The Iron Age Division, H. Childs & Co., Inc., Pittsburgh 22, Pa. has introduced a new style in safety shoes particularly developed for foot ease and comfort during hot weather. This model, No. 614, is made in the popular moccasin oxford pattern and has a woven vamp. It is called the Iron Age "Moc-Weave."



The woven vamp is perforated, as is the inner lining. These air passages permit ventilation. These shoes are soled with "Neolite."

Absorbent

A new, improved oil and grease absorbent called Carey Asbesto-Sorb has been placed on the market by Philip Carey Manufacturing Co., Cincinnati 15, Ohio. Asbesto-Sorb, produced pre-war by Carey, has been returned to the Carey line with a higher quality asbestos fiber content and a greater oil absorption property. It is classified as non-combustible by Underwriters' Laboratories, Inc. and may be used to retard the spread of fire.

The product has been developed to quickly and easily remove oil and grease wherever they accumulate and constitute a hazard or undesirable appearance. It is available in 50 pound cartons, contains no acids or caustic and can be reused until thoroughly oil soaked.

Coil-Chain

A new "packaged" line of coil-chain, distributed under the name McK-Pak, has been announced by the McKay Co., 338 McKay Bldg., Pittsburgh 22, Pa. By putting coil-chain in extra-strength laminated plywood drums at the factory, shipping and handling has been simplified all down the line to the user. Not only do the McK-Pak drums have the advantage of being easily rolled from place to place, but they are quickly stacked for storage and occupy a minimum of space. Quick and easy identification of contents of each drum is assured by distinctive labeling, since each label carries the size, length, finish and working-load limits of the chain.



"Proof Coil" and "BBB Coil" Chain, in self-colored and hot-galvanized finishes, are available in McK-Paks. A Data Sheet lists the chains available, trade sizes, link dimensions, number of links per foot, weight per 100 foot of chain, and the working-load limits for each chain size. A copy of the data sheet may be obtained by writing the McKay Co.

Magnesium Hand Truck

Magline, Inc., Pinconning, Mich., announces the addition of a new model all-magnesium hand truck. Weighing less than twelve pounds, this new Model 40-D-600-SC is remarkable for its lightness and heavy duty load capacity. A new feature of the



truck is the addition of stair climbers which permit the user to transport loads between two levels. The new design also features a curved back frame for facility in carrying all types of packages, containers and bulk goods.

News Items

Willson Products, Inc., Reading, Pa. announces the appointment of the Charles A. Strelinger Co., Detroit, Mich., as its distributor in that area to handle its industrial safety equipment line of goggles, respirators, gas masks, and welding helmets. The new distributor has just opened a Safety Division which will be managed by C. W. Peterson, formerly District Sales Manager of Willson's Detroit office, which has now been closed.

Louis F. Umsted, recently appointed West Coast manager of sales for the Franklin Research Co., Philadelphia, was formerly Manager of Franklin's Seattle Sales Office. He will now headquarter in Los Angeles.

In his new post, Mr. Umsted has supervision of the firm's sales activities in Washington, Oregon, California, Idaho, Montana, Nevada, Utah and Arizona. He will also be responsible for the operation of the company's subsidiary sales offices and warehouses in Seattle, Salt Lake City, San Francisco and Los Angeles.

McDonnell & Miller, Inc., Chicago, has announced the election of George H. LaRoi as vice president and James A. Solon as treasurer. For a number of years both men have played important roles in the growth of the McDonnell and Miller organization in the field of boiler water level controls, low fater cut-offs, safety relief valves, and related products.

The merger of American Air Filter Co., Inc., Louisville, Ky. and Herman Nelson Corp., Moline, Ill., became effective as of January 6 this year. The Nelson Corp. henceforth will be operated as the Herman Nelson Division of American Air Filter Co., Inc., and will continue to maintain its headquarters and facilities in Moline. The merger company's principal offices and headquarters will be in Louisville, Ky.

W. G. Frank, executive vice-president, and Richard H. Nelson have been elected directors of the combined firm. Richard H. Nelson and Robert W. Nelson have been elected vice-presidents of the enlarged firm, and E. G. Mason, of the Herman Nelson Division, has been elected assistant secretary and assistant treasurer.

The appointment of George C. Jelliffe as eastern district manager for the Ilg Electric Ventilating Co. is announced by P. D. Briggs, vice-president and general sales manager for the company. Headquarters for the Eastern District are at 15 Park Row, New York City. Jelliffe first became associated with the company in February, 1946, when he was employed as an assistant to Briggs.

Louis K. Braunston announces the formation of the Champion Glove Corp., 850 Metropolitan Ave., Brooklyn, N. Y. The new firm, of which Mr. Braunston is president, will manufacture plastic-coated work gloves. The company's patented formulation process known as "Champlex" an abrasive-resistant plastic, produces a rubber-like coating on cotton and canvas gloves that is impervious to most acids, oils, solvents and industrial chemicals.

TRADE PUBLICATIONS

in the Safety Field

These trade publications will help you to keep up-to-the-minute on new products and developments in industrial health and safety equipment. They are free and will be sent by manufacturers without obligation to readers of NATIONAL SAFETY NEWS who are responsible for this work. Send in the coupon below checked for the publications you desire. Please make your requests promptly.



1. "Outdoor Lighting for Industrial Plants": A booklet showing how adequate outdoor lighting can increase efficiency, better materials handling. Easy to plan and install, the equipment is simple, modest in cost and results in less errors, greater safety and increased production. General Electric Co.

2. "Job Rated Gloves": A catalog of work gloves which illustrates and describes single and double palm canvas, jersey, chore, fleece palm, hot mill, terry cloth, leather palm, neoprene, plastic and natural rubber-covered canvas as well as chore and thick mittens. Brookville Glove Co.

3. "Grilles of Perforated Metal": A 48-page catalog presenting a large selection of ornamental grille patterns providing designs for every application. Also covered are special grilles, fixed and movable louvers, special panels, enclosures and patented Grilframes. Harrington & King Perforating Co.

4. "Fire Hazard Index": Pocket-sized, 36-page fire hazard index listing in quick reference alphabetical order over 590 chemical, gas, and common fire hazard materials. It specifies which type of fire-fighting agent to use on each. Randolph Laboratories, Inc.

5. Rolling Scaffolds: Bulletin PSS-14 on sectional steel rolling scaffolds describes and illustrates a variety of arrangements of prefabricated steel sections in use as movable scaffolds for repairing, painting, decorating, plastering and other maintenance work. Patent Scaffolding Co.

6. "Plastics That Glow in the Dark": A reprint of an article discussing luminescent pigments, which, when combined with any of several different resins, produces a molding material with interesting present and potential uses. Luminescent Plastics Corp.

7. Gerotor Air Cylinder Catalog: A line of gerotor air cylinders is illustrated in Catalog Section No. 54, directed to help engineers lay out air circuits. Drawings, tables and cylinder mountings are described with types and model valves most suited to various applications. Rivett Lathe & Grinder, Inc.

8. "Your Next Paint Job": A 16-page booklet of diagrams, photographs and drawings, containing a complete discussion of the latest methods of interior and exterior painting for reducing eyestrain, general fatigue and achieving a comfortable working environment. Tremco Manufacturing Co.

9. Chlorine Handbook: A 44-page quick-reference technical manual prepared to help meet industry's demands for basic data covering the safe storage, handling and use of chlorine with maximum margins of safety to personnel, plant and equipment. Diamond Alkali Co.

10. Hoffco-Vac No. 30: Form A-752 on a heavy duty industrial portable cleaning unit. For continuous operation on heavy dust deposits, it operates one 50-foot length of 1½ inch vacuum hose, 3 H.P. motor and 4.4 cubic foot dust storage capacity. United States Hoffman Machinery Corp.

11. "Safety First": A brochure describing hand portable dry chemical fire extinguishers with such features: non-toxic, prevents re-flash, will not stain or damage, is non-conductive, unaffected by time or temperature, easy to refill and has simplicity of operation. Safety First Co.

12. Industrial Safety Equipment: A catalog of industrial safety equipment that contains flashlights; explosion proof, vapor proof and portable inspection lights; floorlights, transformers, flashers and beacons, and many other items and accessories. Stewart R. Browne Mfg. Co., Inc.

13. Sling Chains: Booklet DH-80 contains full information on sling chains. Their advantages, points to consider when ordering, the listing and specifications of the various types, care, and inspection are among the subjects covered. American Chain & Cable Co., Inc.

14. "132 Unusual Uses": Various uses for vacuums in industry that deviate from the fundamental functions are described in Bulletin 144. It shows how they can be used for reclaiming materials, for use in processing, spraying, drying, conveying and other unusual uses. Spencer Turbine Co.

15. Welding Curtains: A brochure on welding curtains of flameproof and waterproof canvas. The curtains are designed to confine the welding operations to a given area and protect other workers and passers-by from rays and flying chips. A. Smith & Son, Inc.

16. Safety Step Ladders: A folder showing safety-step ladders of all steel construction with step plates of expanded steel. Rubber tipped legs stops rolling and permits easy moving. In sizes from 1 to 6 steps, the last three have hand rails. The Ballymore Co.

17. Electro-Lock Shield: Bulletin 103 on a shield that permits the operator to see clearly the work he is performing and at the same time protect his face from sparks, flying chips and emery dust. The machine cannot be started when the shield is out of protective position. Junkin Safety Appliance Co.

18. Hypressure Jenny: A folder on a steam cleaner and process heat generator. As a steam cleaner, it cleans faster, more economically and has 300 gallons per hour capacity. As a heat generator, it has full heat supply in two minutes. Homestead Valve & Mfg. Co.

NATIONAL SAFETY NEWS

MAY, 1950

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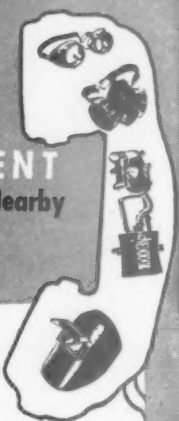
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EQUIPMENT
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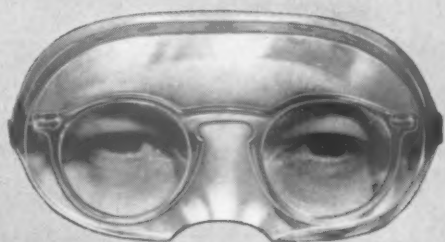
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the **NEW COVERLITE** goggle

can be worn over most standard types of
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● Even this negligible weight (only 97/100 of an ounce) is distributed evenly over the nose, brow and cheeks. No wonder workers wear the new COVERLITE with enthusiasm.

The sturdy injection-moulded, non-flammable frame provides full protection from impact, dust, flying sparks and chips. Good ventilation and ample air space prevent fogging. Large frontal area gives good range of vision in all directions. Easy-to-adjust elastic headband.

COVERLITE goggles can occupy an important place in your safety program. They are ideal for buffing, polishing, light assembly work and spot welding. Choice of clear, light green and dark transparent frames.

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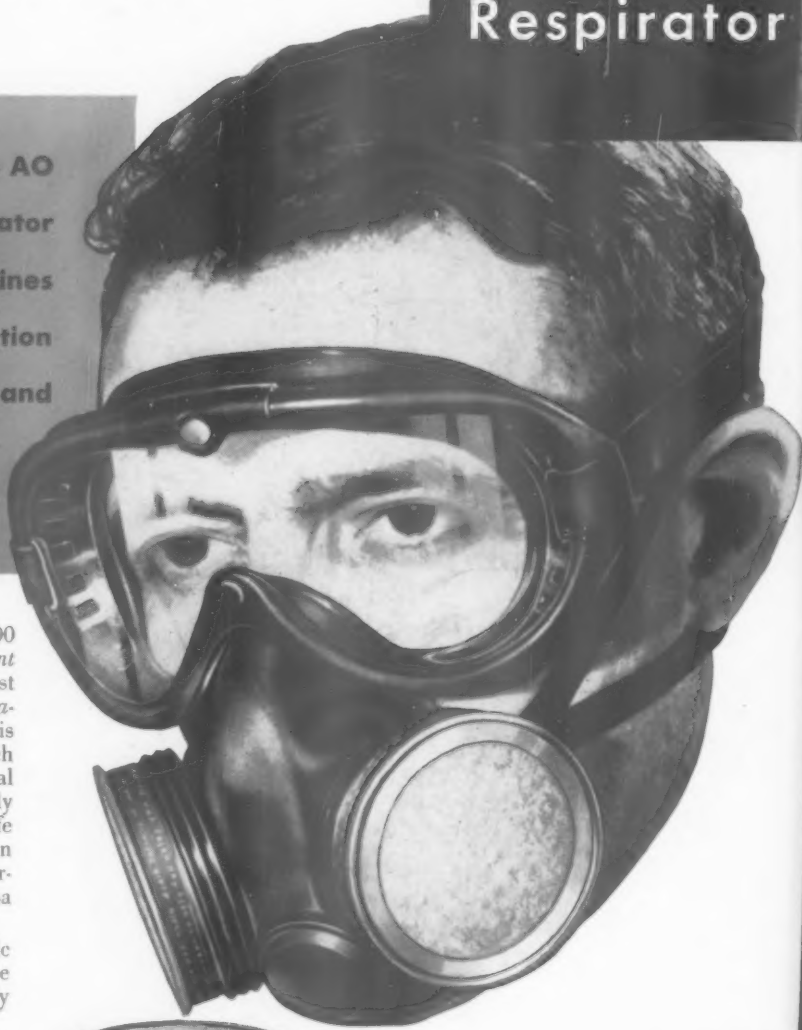
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IN ONE CARTRIDGE

Yes, the AO R5055 Respirator (R5000 line) leads the way to a new, convenient standard of safety by protecting against organic vapors and all dusts *simultaneously*. The "business end" of this protection is the R55 cartridge which contains *both* a highly efficient chemical absorbent and a cover of chemically treated felt. Result: wearers are safe when both hazards are present and can move freely from dust to organic vapor-contaminated atmospheres or vice versa without changing cartridges.

The R5052 Respirator with its basic R5000 Face Piece and interchangeable cartridges and disc filter can be quickly converted to protect against

- (1) A combination of all dusts
- (2) Light organic fumes, vapors and gases
- (3) Acid gases, fumes and mists
- (4) Combined acid and organic gases
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Your nearest AO Safety Products Representative can supply you with this "7-in-1" respirator that gives *double* the protection.



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